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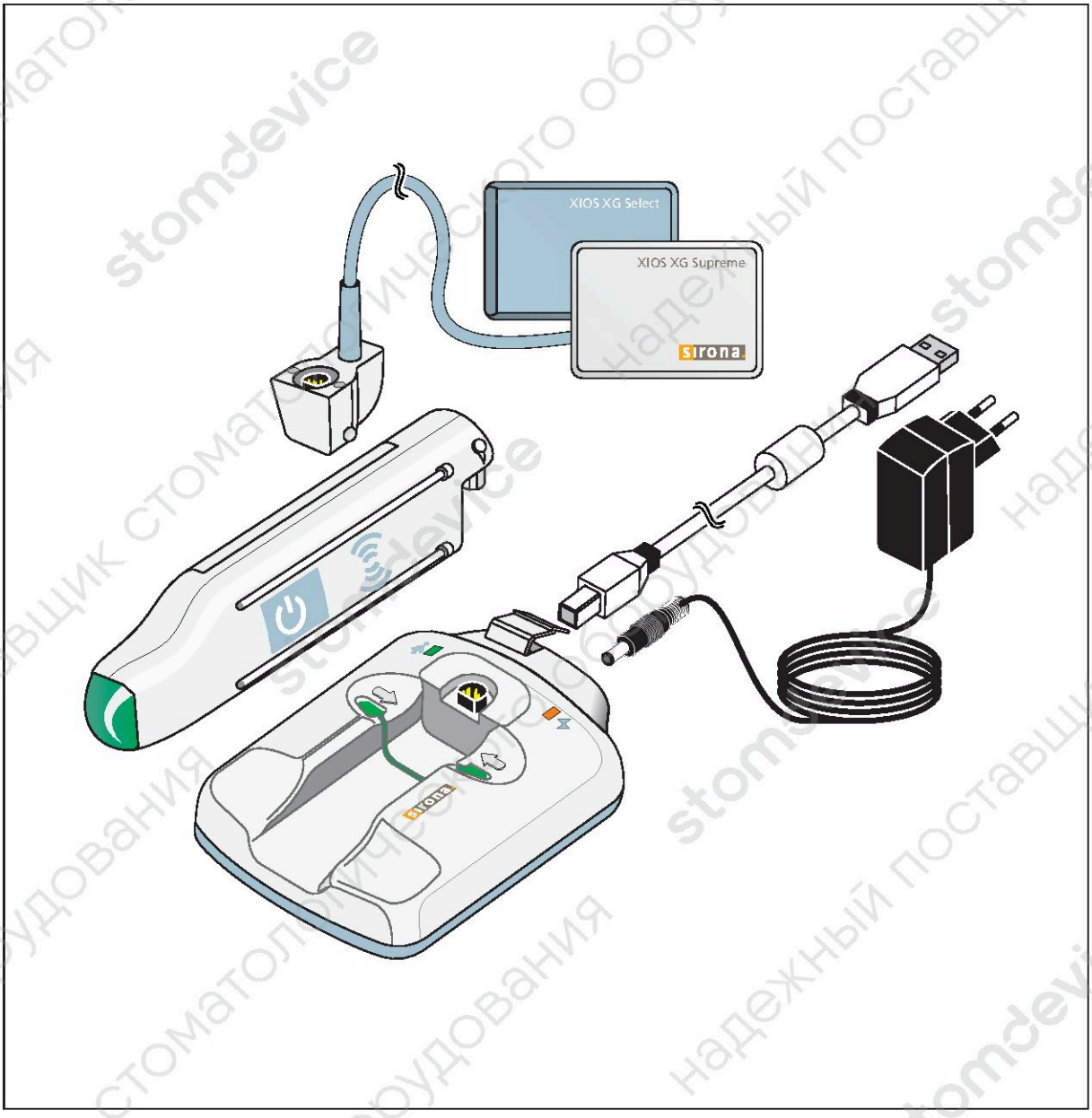
New as of: 11.2017

sirona
The Dental Company

XIOS XG WiFi System and Sensors

Operating Instructions and Installation

English



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1 General information

1.1 Dear Customer,

We are pleased that you have equipped your practice with the wireless digital Intraoral X-ray system XIOS XG from Sirona.

The WiFi interface transfers the X-ray images to a PC via your wireless practice network (WLAN). The WiFi interface contains a storage battery that is recharged via the charger. The system provides you with outstanding image quality and high reliability on a day-to-day basis with maximum flexibility.

XIOS XG can be operated with two types of sensor – the XIOS XG Select and XIOS XG Supremesensors. Both types of sensor are available in three sizes (0, 1 and 2). By using XIOS XG Supreme sensors enhanced image processing functions are available to you in SIDEXIS XG / SIDEXIS 4 through special filters. Depending on the indication you can apply the corresponding filter to the X-ray image in order to amplify the relevant structures. XIOS XG Supreme sensors offer higher resolution compared with XIOS XG Select sensors.

In addition to SIDEXIS XG / SIDEXIS 4 (SIDEXIS XG version 2.5.6 and above) the SIDEXIS plug-in must be installed for XIOS XG. Information on the PC software can be found in the "SIDEXIS Plug-in for XIOS XGOperator's Manual".

This operating manual should be of good help to you before use as well as serve anytime later as a reference material.

We wish you a great deal of success and pleasure with XIOS XG.

Your XIOS XG Team

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1.2 Contact information

Customer service center

In the event of technical queries, please use our online contact form at www.sirona.com. In the navigation bar, go to the menu commands *"CONTACT"* / *"Customer Service Center"* and then click the *"CONTACT FORM FOR TECHNICAL QUESTIONS"* button.

Authorized agent in the EU



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1.3 General information about this operating manual

Observe the Operating Instructions

Please familiarize yourself with the unit by reading through these Operating Instructions before putting it into operation. It is essential that you comply with the specified warning and safety information.

Always keep the operating instructions handy in case you or another user require(s) information at a later point in time. Save the operating instructions on the PC or print them out.

If you sell the unit, make sure that the operating instructions are included with it either as a hard copy or on an electronic storage device so that the new owner can familiarize himself with its functions and the specified warning and safety information.

Online portal for technical documents

We have set up an online portal for the Technical Documents at http://www.dentsplysirona.com/manuals. There, you can download these operating instructions and further documents. Please complete the online form if you would like a hard copy of a particular document. We will then be happy to send you a printed copy free of charge.

Help

If you require additional help despite having thoroughly studied the Operating Instructions, please contact your dental depot.

1.4 Other valid documents

The X-ray system includes other components, such as PC software, which are detailed in other documents. Instructions and warning and safety information provided in the following documents must be taken into account:

- SIDEXIS 4 Installation Instructions
- SIDEXIS 4 User Manual
- SIDEXIS XG Installation Instructions
- SIDEXIS XG Operator's Manual
- SIDEXIS Plug-in for XIOS XG Operator's Manual

Keep these documents handy at all times (file them in the X-ray System Logbook in the FR of Germany).

The system integrator must complete the enclosed declaration of conformity.

To safeguard your warranty claims, please complete the attached "Installation Report / Warranty Passport" together with the service engineer immediately after the installation of your unit.

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1.5 Intended use

The XIOS XG X-ray system is designed for digital acquisition of intraoral X-ray images for diagnostic purposes. The system is used on patients by dental professionals. The digital images produced are transferred to a PC and displayed on a monitor. The images can be edited, saved and printed on the PC.

The product must not be operated in hazardous areas.

1.6 Indications and contraindications

Indications in the areas:

- Conservative dentistry
- Caries diagnosis, especially of proximal lesions
- Endodontics
- Periodontology
- Prosthodontics
- Functional diagnosis and treatment of craniomandibular dysfunctions
- Surgical dentistry
- Implantology
- Oral and maxillofacial surgery
- Orthodontics

Contraindications:

- Display of cartilage structures
- Display of soft tissue

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1.7 Structure of the document

1.7.1 Identification of the danger levels

To prevent personal injury and material damage, please observe the warning and safety information provided in these operating instructions. Such information is highlighted as follows:

⚠ DANGER

An imminent danger that could result in serious bodily injury or death.

⚠ WARNING

A possibly dangerous situation that could result in serious bodily injury or death.

⚠ CAUTION

A possibly dangerous situation that could result in slight bodily injury.

NOTICE

A possibly harmful situation which could lead to damage of the product or an object in its environment.

IMPORTANT

Application instructions and other important information.

Tip: Information for simplifying work.

1.7.2 Formats and symbols used

The formats and symbols used in this document have the following meaning:

✓ Prerequisite **1.** First action step **2.** Second action step or ➢ Alternative action ↳ Result ➢ Individual action step	Prompts you to do something.
See “Formats and symbols used [→ 10]”	Identifies a reference to another text passage and specifies its page number.
• List	Designates a list.
“Command / menu item”	Indicates commands, menu items or quotations.

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2 Safety Instructions

2.1 Qualifications of operating personnel

The system may only be operated by skilled or properly trained personnel.

Personnel undergoing education or training, or who are using the unit as part of general training may only operate the unit under the constant supervision of an experienced person.

2.2 Hygiene

Suitable hygienic measures must be taken to prevent cross contamination between patients, users and other persons.



The hygienic protective sleeves and sensor holder tabs are single use devices which must be renewed for each patient. Do not use single use devices more than once.

The sterilizable exposure accessories such as the rods and rings of the XIOS XG sensor holder must be sterilized to prevent any possible transmission of infective agents which might under certain circumstances cause serious illnesses.

The sensors and the cable must be disinfected before each patient. Refer to Hygiene [→ 101].

2.3 Radiation protection

The valid radiation protection regulations and measures must be observed. The statutory radiation protection equipment must be used. Please follow the manual for your X-ray tube assembly.

2.4 PC system and software

During the exposure, the data connection and power supply must be ensured via the USB port. Under Power Options on the control panel set the PC so that it never switches to stand-by operation or goes to sleep.

SIDEXIS XG / SIDEXIS 4 may not be terminated until the end of the exposure. Before image acquisition, close all programs that are not required for the operation of SIDEXIS XG / SIDEXIS 4. Any programs running in the background, such as media players, print managers, backup software, etc., may cause SIDEXIS XG / SIDEXIS 4 to crash during the exposure. In cases of doubt, consult your system administrator.

These operating instructions presuppose that you are familiar with the use of the SIDEXIS XG / SIDEXIS 4software.

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2.5 Allocation of acquisition system to patient

During routine practice, the clear allocation of the acquisition system to the patient to be examined is ensured. This also applies to the allocation of the X-rays to the patient data stored by SIDEXIS XG / SIDEXIS 4.

2.6 Storage battery

General guidelines and warnings

Hazards may be caused by lithium-ion storage batteries. Incorrect charging or improper use may result in fire as well as personal injury and damage to property.

If the WiFi interface with the installed storage battery becomes unusually warm or deformed, switch the unit off immediately and consult your specialist dealer.

No liability can be accepted for the storage battery for damage resulting from misuse, incorrect charging or improper use.

Charging the storage battery

Only use the charger and power supply unit supplied to charge the WiFi interface storage battery. Otherwise the storage battery may overheat and ignite.

The charging temperature should be between 0°C (32°F) and 45°C (113°F) for an optimum charge.

Ensure that no flammable materials are nearby during charging. If the WiFi interface with the storage battery is warm to the touch, let it cool down first of all before charging it.

The storage battery is only half charged upon delivery.

Storage battery lifetime

The battery should be recharged in the charger between patients with regular use of the WiFi interface. This prolongs the battery lifetime.

Where the WiFi interface is not in use for longer than one week (on account of a vacation for example), it should be removed from the charging device. However, please note that it still uses a low amount of power even when switched off on account of internal switching operations, and a fully-charged storage battery will be dead in approx. 5 weeks. The WiFi interface must be recharged at this point at the latest in order to prevent an exhaustive discharge of the storage battery which shortens the battery lifetime.

If the storage battery has been charged for several hours and shows an "orange" charge state after just one exposure (see "Determine unit status" [→ 66]), the storage battery must be taken out of service and disposed of.

Storage and transport

Store storage batteries at room temperature between 4°C (40°F) and 21°C (70°F). Do not expose the storage battery to direct sunlight for long periods of time. Do not store the storage battery at locations where the temperature may exceed 49°C (120°F).

For temporary storage and transportation of the storage battery the temperature should not fall below -7°C (20°F) or exceed 66°C (150°F). Temperatures of 66°C (150°F) and above may damage the storage battery where stored for a longer period (more than 2 hours) and may cause fire.

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Do not expose the storage battery to heavy impacts or vibrations.

2.7 Trouble-free operation

Use of this unit is permissible only if it works properly without malfunctions. If trouble-free operation cannot be ensured, the unit must be taken out of service, checked by authorized technicians for malfunctions and, if necessary, repaired or replaced.

2.8 Maintenance

In the interest of safety and health of patients, users or third parties, it is necessary that inspections are carried out at fixed time intervals to ensure operational and functional safety of your product (IEC 60601-1 / DIN EN 60601-1, etc.), see "Regular checks" [→ 103].

The owner is responsible for making sure that all inspections are performed.

In the event that the system owner fails to fulfill the obligation to perform scheduled inspection activities or ignores error messages, Sirona Dental Systems GmbH and its authorized dealers cannot assume any liability for damages.

As manufacturers of medical electrical equipment we can assume responsibility for the safety-related features of the equipment only if **maintenance and repair** are carried out only by ourselves or agencies expressly authorized by us, and if components affecting safe operation of the system are replaced with **original spare parts** upon failure.

We suggest that you request a certificate showing the nature and extent of the work performed from those who carry out such work; it must contain any changes in rated parameters or working ranges (if applicable), as well as the date, the name of the company and a signature.

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2.9 Changes and extensions to the device

Modifications to this system which might affect the safety of the system owner, patients or other persons are prohibited by law!

For reasons of product safety, this product may be operated only with original Sirona accessories or third-party accessories expressly approved by Sirona. The user is responsible for any damage resulting from the use of non-approved accessories.

If devices that are not approved by Sirona are connected, they must comply with the applicable standards, e.g.:

- IEC 60950-1 or IEC 62368-1 for IT equipment (e.g. PC) and
- IEC 60601-1 for medical devices.

In case of doubt, contact the manufacturer of the system components.

2.10 Combination with other units

Permissible combinations are specified in the Declaration of Conformity by the system integrator.

2.11 Wireless technology

Operation in Europe

The XIOS XG WiFi system may be operated in all European countries.

Operation in the USA in accordance with the Federal Communications Commission (FCC)

This device fulfills part 15 of the FCC stipulations. The following two conditions apply to operation: (1) This device may not cause any harmful radio interference, and (2) this device must withstand any radio interference received, including interference that may lead to unintended operation.

Any changes or modifications which have not been expressly approved by the party responsible for providing approval may revoke the user's right to operate the device.

Transmission rate and range of the wireless signal

The maximum wireless transmission rate for the system is established in accordance with the specifications of the IEEE standard 802.11a/b/g. The actual data transfer rate varies. Network and environmental conditions, such as data traffic in the network and network overhead along with the construction materials and design, may result in a lower actual data transfer rate. The environmental conditions may have a negative impact on the range of the radio signal.

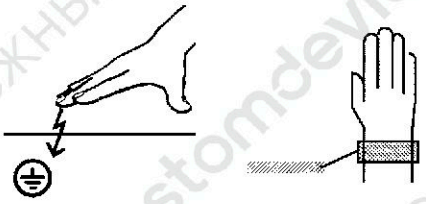
2.12 Radiotelephones

Mobile RF communications equipment can affect electro-medical equipment. Therefore, the use of mobile wireless phones in medical office or hospital environments must be prohibited.

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2.13 Electrostatic discharge



Protective measures

Electrostatic discharge (abbreviated: ESD – **E**lectro**S**tatic **D**ischarge)

Electrostatic discharge from people can damage electronic components when the components are touched. Damaged components usually have to be replaced. Repairs must be performed by qualified personnel.

Measures to protect against ESD include:

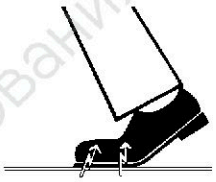
- Procedures to avoid electrostatic charging via
  - air conditioning
  - air humidification
  - conductive floor coverings
  - non-synthetic clothing
- discharging the electrostatic charges from your own body through contact with
  - a metallic unit casing
  - a larger metallic object
  - any other metal part grounded with the protective earth



Endangered regions are indicated on the unit by the ESD warning label:

We recommend that all persons working with this system are made aware of the significance of the ESD warning label. A training course should also be held to inform users about the physics of electrostatic charges.

Physics of electrostatic charges



An electrostatic discharge requires prior electrostatic charging.

There is a danger of electrostatic charges building up whenever two bodies rub against each other, e.g. when:

- walking (soles of shoes against the floor) or
- moving (chair casters against floor).

The amount of charge depends on several factors: The charge is:

- higher at low air humidity than at high air humidity, and
- higher with synthetic materials than with natural materials (clothing, floor coverings).

The following rule of thumb can be applied to assess the transient voltages resulting from an electrostatic discharge.

An electrostatic discharge is:

- perceptible at 3,000 V or higher
- audible at 5,000 V or higher (cracking, crackling)
- visible at 10,000 V or higher (arc-over)

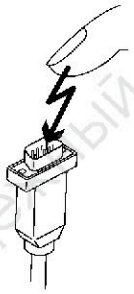
The transient currents resulting from these discharges have a magnitude of over 10 amps. They are not hazardous for humans because they last for only several nanoseconds.

Tip: 1 nanosecond = 1/1,000,000,000 second = 1 billionth of a second

Voltage differentials exceeding 30,000 volts per centimeter may lead to a charge transfer (electrostatic discharge, lightning, arc-over).

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Integrated circuits (logical circuits and microprocessors) are used in order to implement a wide variety of functions in a device. The circuits must be miniaturized to a very high degree in order to include as many functions as possible on these chips. This leads to structure thicknesses as low as a few ten thousandths of a millimeter. Integrated circuits that are connected to wires leading externally are therefore particularly at risk from electrostatic discharge.

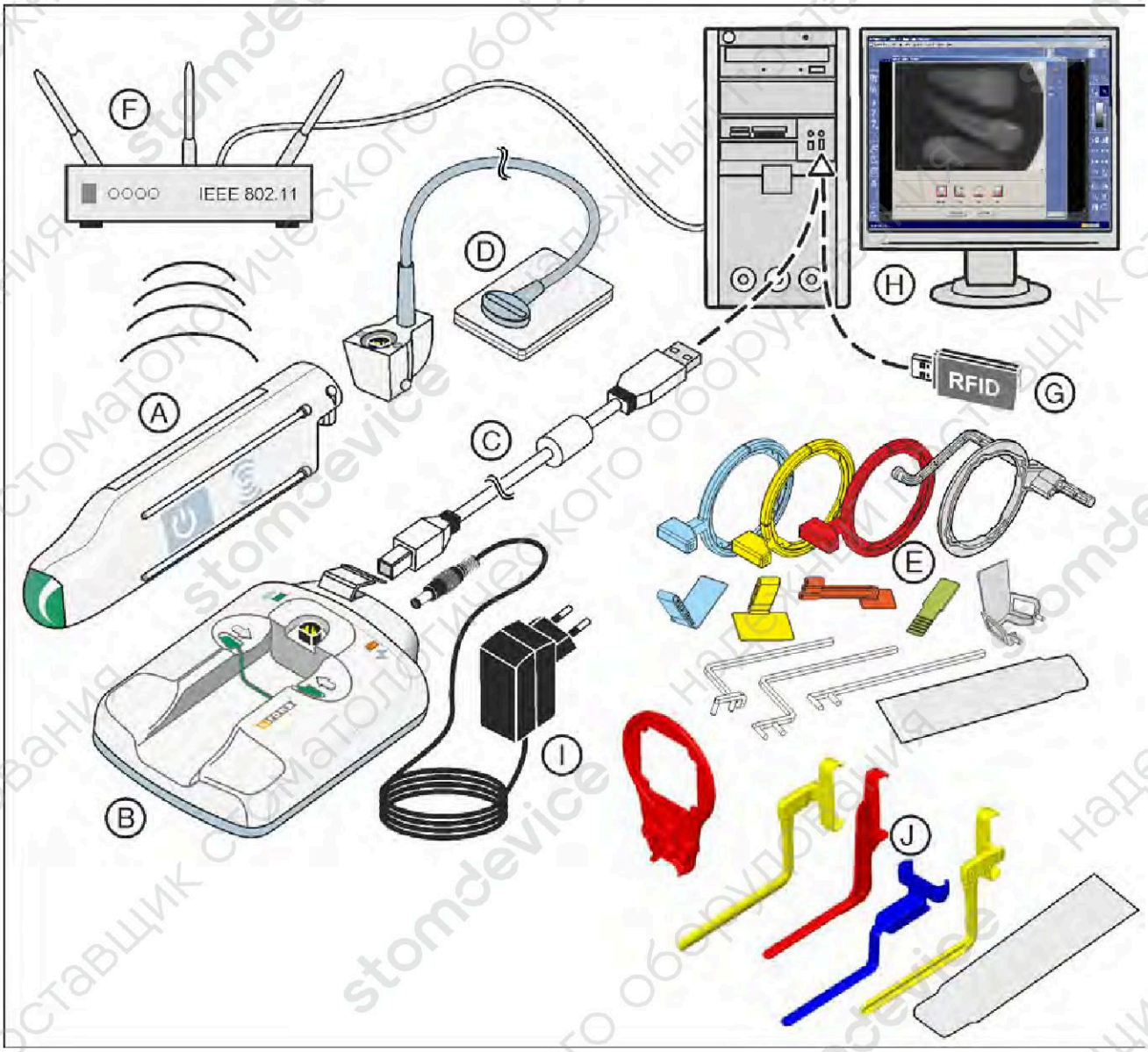
Even voltages that are imperceptible to the user can cause breakdown of the structures, thus leading to a discharge current that melts the chip in the affected areas. Damage to individual integrated circuits may cause malfunction or failure of the unit.

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3 System description

3.1 System structure



A	WiFi interface [→ 19] with RFID transponder
B	Charger [→ 19]
C	USB cable [→ 20]
D	Sensor (size 0, 1 or 2) [→ 21]
E	Single-use sensor holder system with localizer rings, guide rods, sensor holder tabs, [→ 21] and hygienic protective sleeves [→ 73]
F	Wireless access point to the practice network [→ 24]

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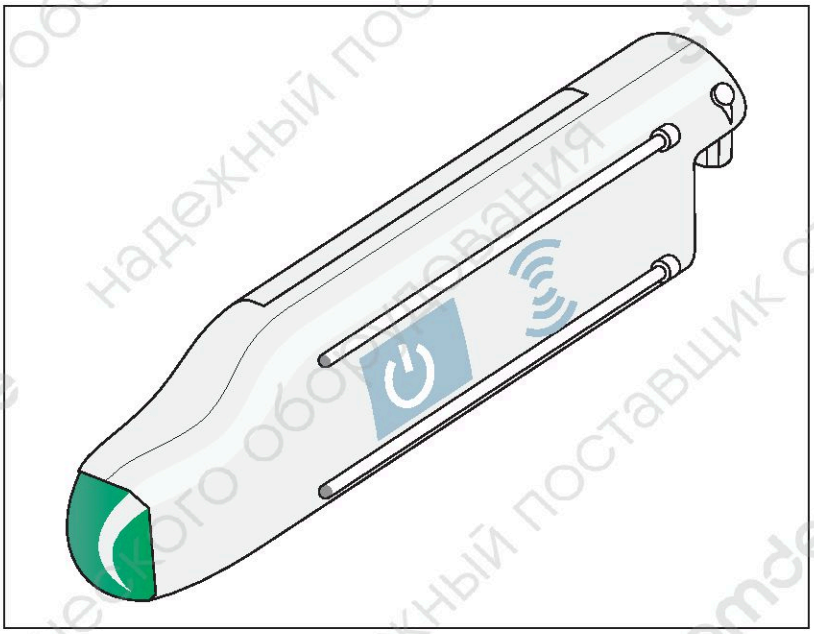
G	Optional RFID reader with USB interface [→ 26]
H	SIDEXIS PC [→ 25] with • Access to the practice's wireless network • SIDEXIS XG / SIDEXIS 4 (SIDEXIS XG version 2.56 or higher) • SIDEXIS plug-in for XIOS XG
I	Power supply unit [→ 20]
J	Aimright reusable sensor holder system with localizer ring, sensor holders, [→ 21] and hygienic protective sleeves [→ 73]

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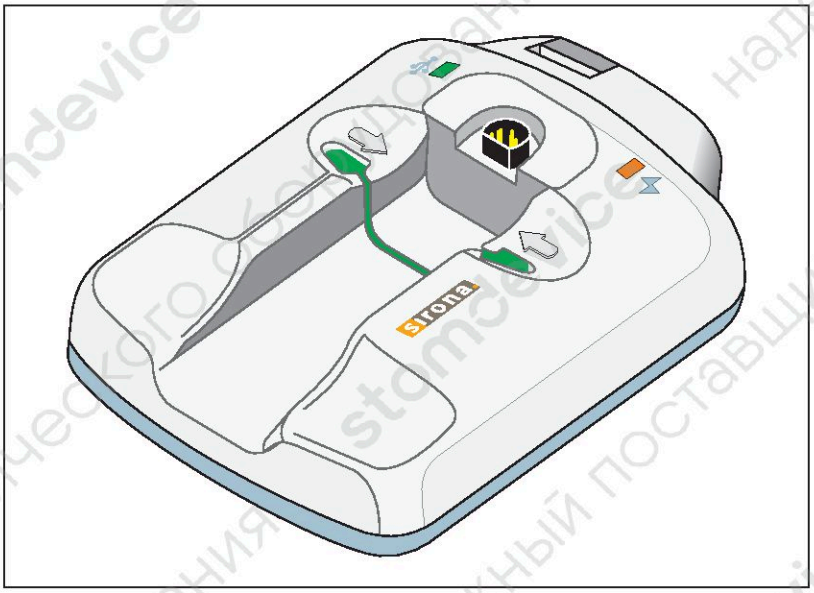
3.2 WiFi Interface

The WiFi interface transfers the X-ray images to a SIDEXIS PC via a wireless practice network (WLAN). The WiFi interface contains a rechargeable storage battery. Further information can be found in the "Operation" [→ 65]section.



3.3 Charger

The charger is used as the storage location for the WiFi interface when it is not in use, and it allows the user to configure the wireless network connection via the USB interface upon initial commissioning.



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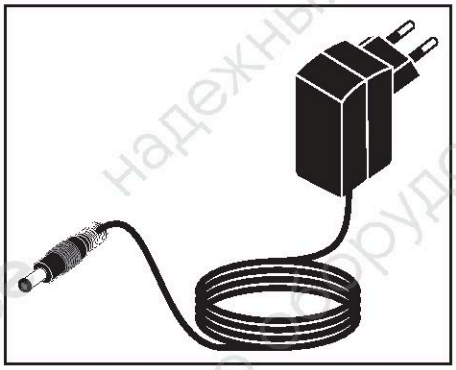
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3.4 Power supply unit

The power supply unit is connected to the charger and it charges the WiFi interface storage battery.

NOTICE

Please only use the power supply unit supplied with REF 6404425 for the external power supply for the charger. Ensure that the power supply unit and the plug contacts are suitable for use in your country.



3.5 USB cable

A USB cable is supplied by Sirona with the delivery. It meets the USB 2.0 standard and is designed especially for use on XIOS XG.

⚠ CAUTION

Standard commercial USB cables do not offer adequate protection from electromagnetic interference.

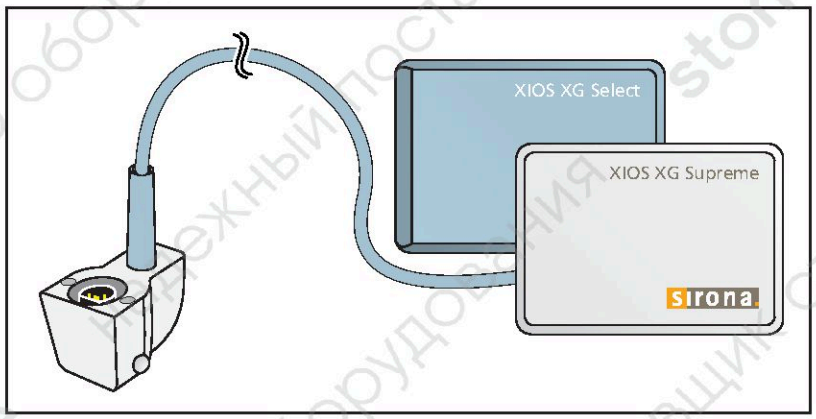
➢ Only use the special USB cable supplied by Sirona with the delivery.

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3.6 Sensors

XIOS XG can be operated with two types of sensor – the XIOS XG Select and XIOS XG Supreme sensors. Both types of sensor are available in three sizes (0, 1 and 2).

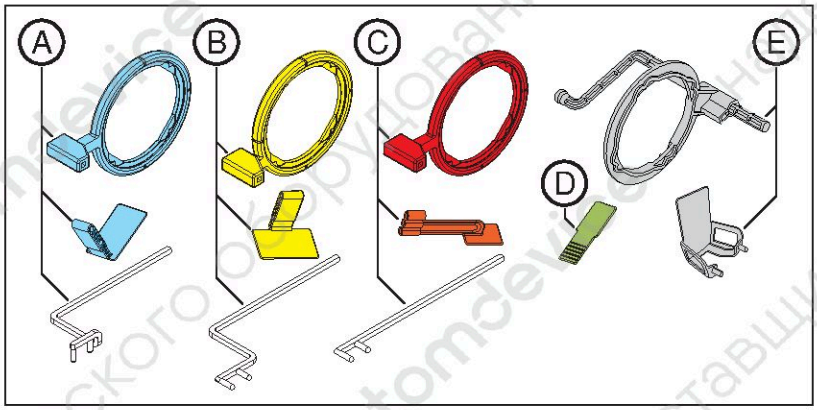


By using XIOS XG Supreme sensors enhanced image processing functions are available to you in SIDEXIS XG / SIDEXIS 4 through special filters. Depending on the indication you can apply the corresponding filter to the X-ray image in order to amplify the relevant structures. Information on the PC software can be found in the "SIDEXIS Plug-in for XIOS XG Operator's Manual".

3.7 Sensor holder systems

3.7.1 Single-use sensor holder system

There are different sensor holders available depending on the type of exposure. The localizer rings and sensor holder tabs are color-coded.



A	Blue for anterior tooth exposure
B	Yellow for posterior tooth exposures
C	Red for bite wing exposures
D	Green for endodontics exposures with the half-angle technique
E	Grey for endodontics (measurement exposure)

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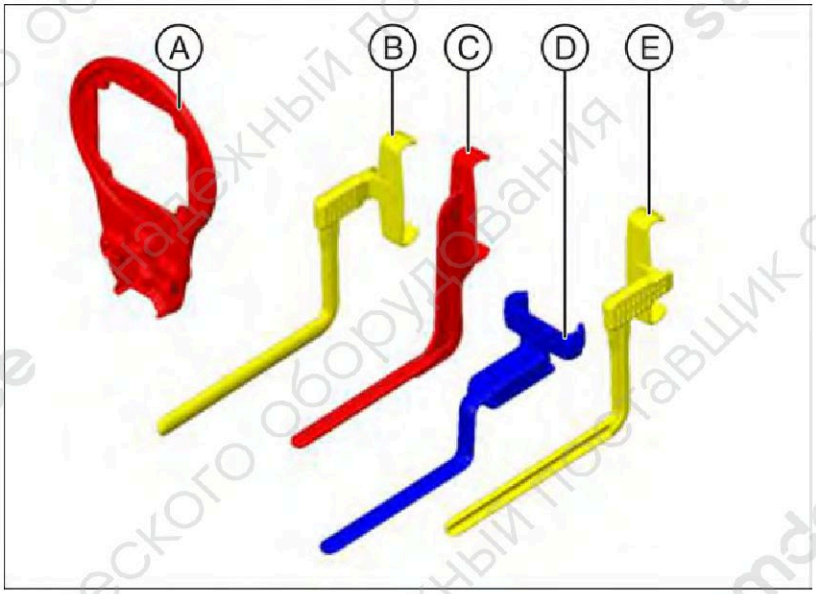
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3.7.2 Aimright reusable sensor holder system

There are different sensor holders available depending on the type of exposure. The sensor holders are color-coded.

The same localizer ring is used for all sensor holders.

The sensor holders are available for sensor sizes 1 and 2.



A	Localizer ring
B	Sensor holder for posterior tooth exposures right upper jaw / left lower jaw, yellow
C	Sensor holder for bite wing exposures, red
D	Blue for anterior tooth exposures, blue
E	Sensor holder for posterior tooth exposures left upper jaw / right lower jaw, yellow

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3.8 Intraoral X-ray tube assembly

The following requirements apply to the intraoral X-ray tube assembly:

Intraoral X-ray tube assembly with multipulse technology (direct current) 0.14 – 1.4 mAs at 60 – 70 kV and 8" cone

This information must be modified accordingly for other tube lengths or single-pulse X-ray tube assemblies.

For optimal image quality we recommend using a multipulse X-ray tube assembly with a 12"cone.

IMPORTANT
The intraoral X-ray tube assembly must be installed in accordance with the manufacturer's instructions and requirements. Please follow the manual for your X-ray tube assembly.

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3.9 Wireless Access Point

The WiFi interface transfers the X-ray images to a SIDEXIS PC via a wireless practice network (WLAN).

A wireless access point (or WLAN router) is required for the wireless connection between the WiFi interface and the PC. The wireless network must be TCP/IP-based and must be compatible with the 802.11b/g/n protocols in order to be able to transfer the data. Each B/G/N wireless access point should be suitable for the XIOS XG WiFi system.

IMPORTANT

The WiFi interface supports the WLAN standard B and G.

The WiFi interface cannot establish a wireless connection if the wireless access point is operated with the setting "N Only".

➢ Configure the access point in such a way that devices with the B and G standards also have access to the wireless network. Use the "B/G/N Mixed Mode" setting.

The installation location selected for the wireless access point should have a connection to the WiFi interface with the strongest signal strength possible. The greater the distance between the WiFi interface and the wireless access point the weaker the signal will be. Physical obstacles and electronic interference also have a negative impact on the signal strength. We therefore recommend investing some time in selecting the optimum installation location. Please also note the manufacturer's recommendations on your wireless access point.

We recommend configuring the wireless access point before installing the XIOS XG WiFi system. The technician who configures these devices should have thorough knowledge of wired and wireless networks in order to guarantee correct operation.

If a WPA2 encryption is selected in setting the WLAN security, the combination of TKIP and AES settings should also be selected.

The following wireless access points have been tested successfully with the XIOS XG WiFi system:

- Cisco access point WAP4410N
- NETGEAR WNR3500L-100NAS Wireless-N router
- Linksys WRT54GL wireless broadband router
- TRENDnet TEW-691GR 2.4GHz N450 wireless Gigabit router
- NETGEAR WNAP210

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3.10 PC system

The digital X-ray exposures are transferred via a wireless network (WLAN) to a PC.

In addition to SIDEXIS XG / SIDEXIS 4 (SIDEXIS XG version 2.56 and above) the SIDEXIS plug-in for XIOS XG must be installed. Information on the PC software can be found in the "SIDEXIS Plug-in for XIOS XG Operator's Manual".

Minimum PC requirements for SIDEXIS 4:

Processor:	> 2 GHz DualCore
RAM:	> 4 GB
Free hard disk storage:	> 5 GB for SIDEXIS 4 installation and database
Removable medium:	CD/DVD drive
Graphics card:	> 512 MB
Screen:	suitable for diagnostics applications, e.g. in accordance with DIN 6868-57
Resolution:	1280 x 1024 pixels
Network card:	Network RJ45, 100 MBit/s
USB port:	in accordance with USB 2.0 standard or higher

Minimum PC requirements for SIDEXIS XG:

Processor:	32-bit (x86), 1 GHz
RAM	2 GB
Free hard disk storage:	5 GB for SIDEXIS XG installation and database
Removable medium:	CD/DVD drive
Graphics card:	> 128 MB, minimum resolution 1024 x 768 pixels, 16.7 million colors (TrueColor)
Screen:	suitable for diagnostics applications, e.g. in accordance with DIN 6868-57
Network card:	Network RJ45, 100 MBit/s
USB port:	in accordance with USB 2.0 standard or higher

The following operating systems are supported:

- Windows 7 Professional SP 1 (32-bit and 64-bit)
- Windows 7 Ultimate SP 1 (32-bit and 64-bit)
- Windows 8.1 Professional (32-bit and 64-bit)
- Windows 10 Professional (64-bit)

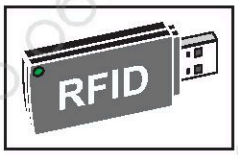
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3.11 RFID Reader

RFID = Radio Frequency Identification

RFID technology can be used to pair the WiFi interface with the PC. An RFID reader which is inserted into a USB port on the PC is required for this.



The XIOS XG WiFi interface is fitted with an RFID transponder in the factory.

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3.12 Technical data

WiFi interface

Electric class:	Protection class II 
Type of protection against electric shock:	 Applied part type **BF**
Degree of protection against ingress of water:	Usual device (without protection against ingress of water), corresponds to protection class IPX0
Power supply:	via integrated storage battery pack, the unit has an ON/OFF switch
USB connection via charger:	Version 2.0
Dimensions L x W x H:	122 x 31 x 24 mm
Weight:	approx. 50 g

Properties for the wireless connection

Technology:	2.4 GHz FM digital data transmission, IEEE 802.11b/g, WiFi-enabled, effective radiated power < 2 mW
Frequency:	2.4-2.4835 GHz, 11 channels usable
Modulation technology:	DSSS, CCK, OFDM
Modulation type:	DBPSK, DQPSK, CCK, BPSK, QPSK, 16QAM, 64QAM
Network access modes:	Ad-hoc and infrastructure
Wireless data rate:	802.11b - 11 / 5.5 / 2 / 1 Mbs 802.11g - 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6 Mbs
Security protocols:	deactivated, WEP 64 and 128 bit, WPA (TKIP), WPA (AES), WPA2 (AES)

Charger

Function:	Storage unit for WiFi interface with LEDs for status display
Input:	+6.5 V DC
USB connection for setting up the WiFi interface:	Version 2.0
Dimensions L x W x H:	(103 x 76 x 37) mm
Weight:	approx. 50 g

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XIOS XG Select Sensors

Technology:	CMOS-APS (Active Pixel Sensor)
Physical pixel size:	15 µm, image acquisition in 30 µm
Line pairs:	16.7 Lp at 30 µm
Measured resolution:	16 Lp/mm
Theoretical resolution:	16.7 Lp/mm
Active sensor area:	Size 0 - sensor = 18 x 24 mm Size 1 - sensor = 20 x 30 mm Size 2 - sensor = 25.6 x 36 mm
External dimensions:	Size 0 - sensor = 23.5 x 32 x 6.3 mm Size 1 - sensor = 25.3 x 38.4 x 6.3 mm Size 2 - sensor = 31.2 x 43.9 x 6.3 mm
Cable length:	max. 2.70 m

XIOS XG Supreme Sensors

Technology:	CMOS-APS (Active Pixel Sensor)
Physical pixel size:	15 µm, image acquisition in 15 µm
Line pairs:	33.3 Lp at 15 µm
Measured resolution:	28 Lp/mm
Theoretical resolution:	33.3 Lp/mm
Active sensor area:	Size 0 - sensor = 18 x 24 mm Size 1 - sensor = 20 x 30 mm Size 2 - sensor = 25.6 x 36 mm
External dimensions:	Size 0 - sensor = 23.6 x 32 x 7.5 mm Size 1 - sensor = 25.4 x 38.3 x 7.5 mm Size 2 - sensor = 31.2 x 43 x 7.5 mm
Cable length:	max. 2.70 m

Power supply unit

Input:	100-240 V ~50/60 Hz 500 mA
Output:	6.5 V ⎓1.5 A

Operating and transport conditions

Mode of operation:	Continuous operation
Additional information:	The unit must not be used near flammable anesthesia gas mixtures containing air, oxygen or nitrogen oxide.
Transport and storage conditions:	Temperature: -40 °C (-40 °F) to 70 °C (158 °F) Relative humidity: 20 % to 85 % Air pressure: 500 to 1060 hPa

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Operating conditions:	Temperature: 10 °C (50 °F) to 40 °C (104 °F) Relative humidity: 20 % to 85 % Air pressure: 700 to 1060 hPa
Operating altitude:	≤ 2000 m

3.13 Certification, registration and standards

The XIOS XG WiFi system complies with the following standards, among others. It complies with the requirements of these regulations:

- CAN/CSA C22.2 No.601.1-M90 (Medical Electrical Equipment - Part 1: General Requirements for Safety)
- ETSI-EN 301 489-3 (Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Electromagnetic Compatibility (EMC) Standard for Radio Equipment and Services - Part 1: Common Technical Requirements)
- IEC 60601-1 (Electro-Medical Devices - Part 1: General Requirements for Safety)
- IEC 60601-1-2 (Medical electrical equipment - Part 1: General requirements for safety; 2. Collateral standard: Electromagnetic compatibility - Requirements and tests)

CE 0413

This product bears the CE mark in accordance with the provisions of the Council Directive 93/42/EEC of June 14, 1993 concerning medical devices.

Original language of the present document: English

3.14 Symbols



Device with protection class II in accordance with IEC 60601-1



Type BF applied part according to IEC 60601-1



Please refer to manual first

CE 0413

CE mark in accordance with Council Directive 93/42/EEC, stating the manufacturer's Notified Body.



This identification signifies fulfillment of the requirements of the national standards of the USA and Canada.

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Year of manufacture



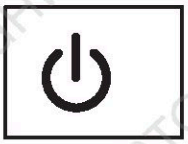
Denotes sterilizable accessories.



Item is only approved for one-off use.



This device is sensitive to electromagnetic discharges (ESD). The electronics may be destroyed by contact with plug contacts under certain conditions, e.g., low humidity.



ON/OFF switch



USB connection socket



Source of non-ionizing radiation



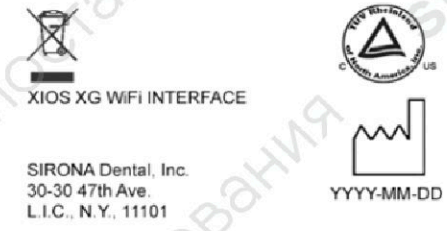
Refers to Directive 2002/96/EC and EN 50419
Do not dispose of device with domestic waste

3.15 Position of the Labels

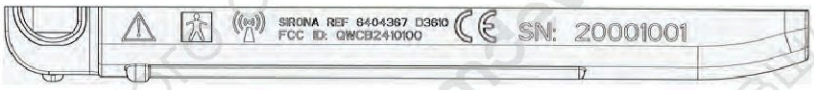
The following labels are attached to components or packaging of the XIOS XG WiFi system:

Storage battery





WiFi interface



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Charger



XIOS XG WiFi DOCKING STATION
REF 6404383 WARNING: USE ONLY
SN XXXXXXXX SIRONA REF 6404425
Input: +6.5V ⎓@ 1.5A POWER SUPPLY
SIRONA Dental, Inc. MFR: YYYY/MM/DD
30-30 47th Ave., L.I.C., N.Y., 11101, U.S.A.

Power supply unit



Sensors



Sensor cable



RFID reader



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4 Installation

4.1 Position the PC

Depending on whether the PC is operated inside or outside of the patient environment (up to 1.5 m around the patient), an additional protective ground conductor must be provided on the PC housing.

When using the XIOS XG WiFi system, Sirona recommends positioning the PC outside of the patient environment.

⚠ CAUTION

Leakage currents from the PC are transmitted to the X-ray system.

If a PC is not sufficiently grounded, there is a risk of electric shock for both the patient and the user.

- ➢ The PC must be connected to a grounded electric outlet when in operation.
- ➢ If the PC is operated in the patient environment (up to 1.5 m around the patient), it must also be fitted with an additional protective ground conductor.

4.2 Install the PC software

The PC must be in a state of operational readiness before the installation of the XIOS XG Intraoral System. Make sure that the hardware and the operating system are properly installed. Refer to the manuals for your PC and operating system.

The installation of SIDEXIS XG / SIDEXIS 4 is described in the installation instructions for SIDEXIS XG / SIDEXIS 4.

The SIDEXIS plug-in for the XIOS XG WiFi system must be installed in addition to SIDEXIS XG / SIDEXIS 4. To do this, proceed as follows:

- ✓ SIDEXIS XG / SIDEXIS 4 (SIDEXIS XG 2.56 or higher) is installed on the PC.

1. Log onto your PC with an administrator account.
2. Insert the *"Sirona XIOS XG Select/Supreme 1.2 - Installation"* CD into your PC's CD/DVD drive.
3. The setup normally starts automatically. If the setup does not start, double-click on the "Autorun.exe" file in the main directory of the installation CD.
   - ↳ The setup window opens.

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4. Click on *"Installing the device connection with WiFi support"* in the setup window.
5. Follow the additional instructions.
6. Restart the PC if you are required to do so.



↳ The SIDEXIS plug-in for the XIOS XG WiFi system is installed.

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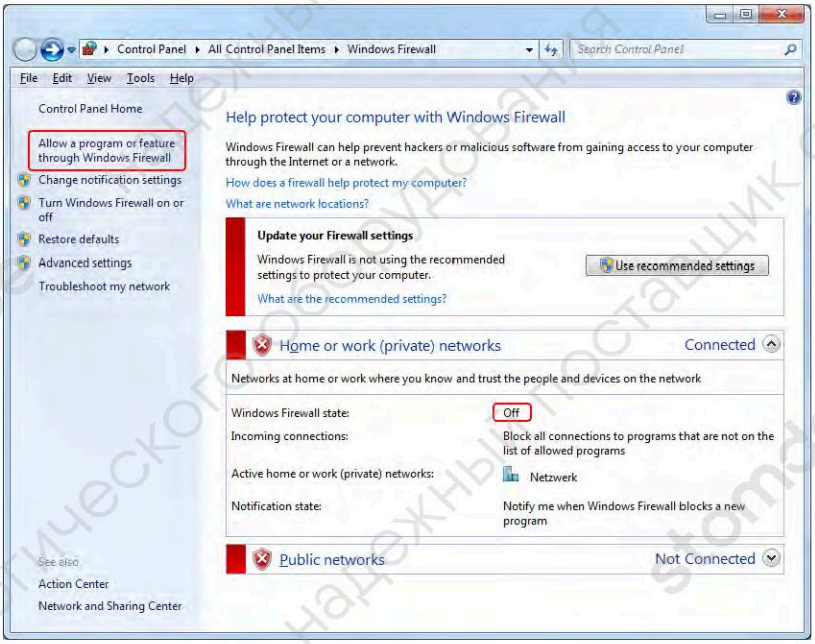
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4.3 Check Firewall Settings

Please check the Firewall settings. Please go to the next section if there is no active Firewall.

The steps required for different operating systems are described below as examples. The same steps must be applied where separate Firewall programs are in use:

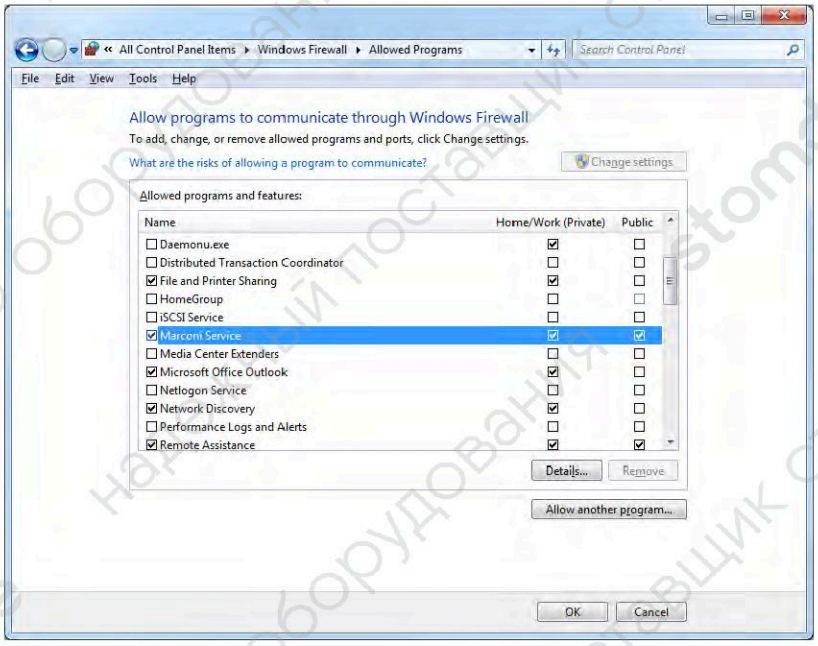
1. In the Windows Control Panel, open the Windows Firewallpage:
   "Start" > "Control Panel" > "Windows Firewall"



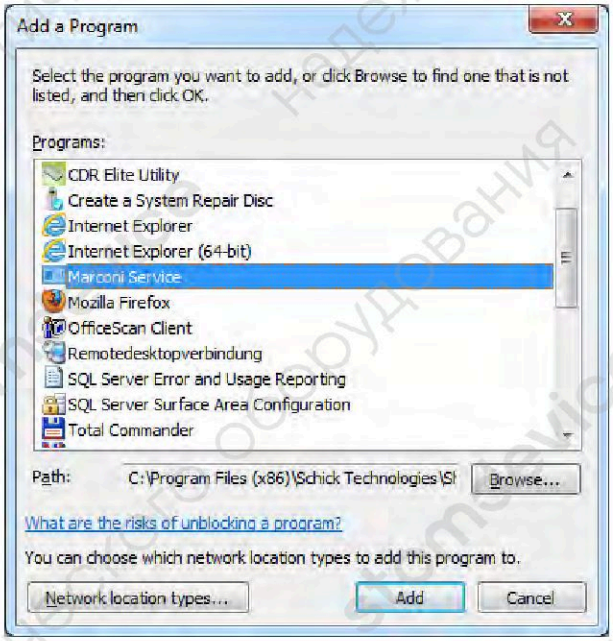
   ↳ Is the Firewall active?
   No: No additional settings are required.
   Yes: Execute the following instructions.

2. In Windows 7, select the *"Allow a program or feature through Windows Firewall"* entry.

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3. Look for the *"MarconiService"* entry in the list and activate the check box.
4. If the *"MarconiService"* entry is not available then it must be added to the list. Click on the *"Program..."* or *"Allow another program..."* button. Enter the path C:*"Programs"*\Schick Technologies\Shared Files\MarconiService.exe.



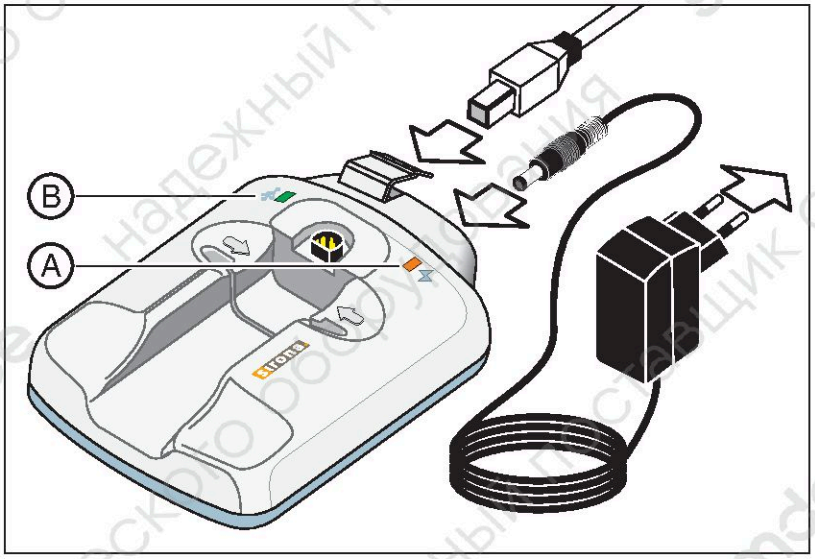
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4.4 Connect the charger

The WiFi interface storage battery is charged using the charger.

The charger can also be used to connect the WiFi interface to a PC via USB. This is only necessary on initial installation and for WiFi interface configuration and updates. A driver is automatically installed when the charger is connected to a PC for the first time.



Connecting the power supply unit

NOTICE

Please only use the power supply unit supplied with REF 6404425 for the external power supply for the charger. Ensure that the power supply unit and the plug contacts are suitable for use in your country.

1. Connect the power supply unit to the charger.
2. Plug the power supply unit into a socket.
   ↳ The operating LED (A) is lit on the charger.

Establishing the USB connection

1. Open the flap on the charger.
2. Connect the USB port for the charger with the one for the PC. Use the special USB cable supplied with the delivery for this.
   ↳ The USB LED (B) is lit on the charger.
   ↳ The charger drivers install automatically on the PC. After this the message "New hardware was installed and can now be used" appears.

Do not disconnect the USB connection between the charger and PC just yet. It is required for additional configuration steps.

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4.5 Setting channels at the Wireless Access Point

The WiFi interface can be operated only in the channels 1 to 11.

Limit your router / access point to the channels 1 to 11 in the case of changing channels or set it to a fixed channel.

IMPORTANT

Wrong channel

If an already configured WiFi interface can no longer be connected, check the channel that is displayed in the WiFi Configuration Utility.

To this end, the WiFi interface must be in the charger tray and the charger tray must be connected with the PC using a USB cable.

If the channel 0 is displayed, the WiFi interface may not be connected because a channel greater than 11 is active.

4.6 Configure the WiFi interface for the practice network

Each B/G/N wireless access point should be suitable for the WiFi system.

IMPORTANT

The WiFi interface supports the WLAN standard B and G.

If the access point is operated only with the setting "N Only", the WiFi interface may not establish any wireless connection.

➢ Configure the access point such that devices of the B and G standard also have access to the wireless network (setting "B/G/N Mixed Mode").

Please consult the documentation supplied on your wireless access point for details and additional information where you have any questions related to the wireless network upon installation.

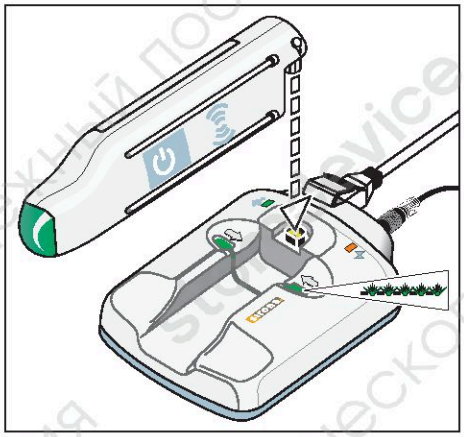
Establish USB connection between WiFi interface and PC

A USB connection must be established for configuration of the wireless interface between the WiFi interface and PC. This is facilitated by the charger.

✓ The charger is powered by the power supply unit and it is connected to the USB interface of the PC.

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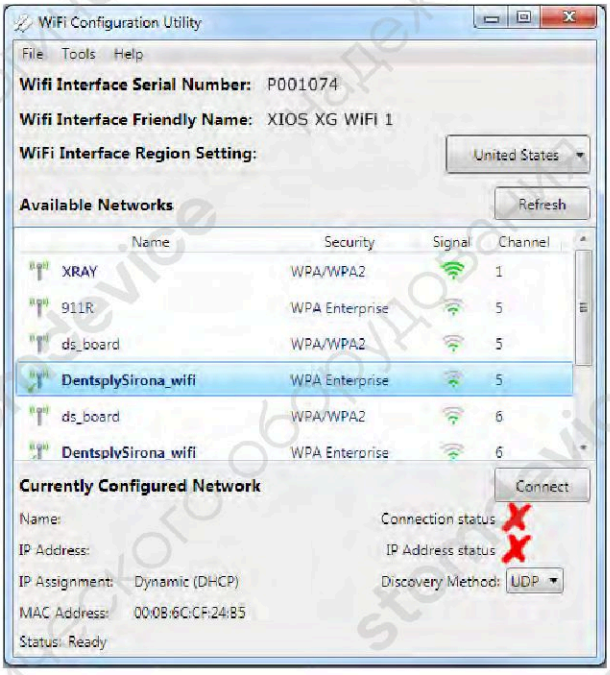
➢ Plug the WiFi interface into the charger.
  ↳ After about 15 seconds, the LED at the WiFi interface starts to flash.
  ↳ If the WiFi interface was turned off during plugging in, it automatically turns on and the LED turns violet. Please wait 15 seconds until the boot sequence has completed. The LED will start to flash once this has happened. The flashing color shows the charging status of the storage battery.
  ↳ If you are using the WiFi interface for the first time and the LED is displaying a low charge state (orange to red color range) then the WiFi interface storage battery must be charged. The charging time is up to two hours for a complete charge. However, you can still continue the configuration.

↳ USB connection is established between the WiFi interface and PC.

Connect the WiFi interface with a visible wireless network

If your wireless practice network is plugged in, please also follow the instructions in the section "Connect the WiFi interface with a visible wireless network", see below.

1. Start the *"WiFi Configuration Utility"* configuration program.
   For SIDEXIS XG: Click *"Start"* > *"Programs"* > *"SIDEXIS"* > *"SIDEXIS Manager"* > *"XIOS XG Configuration"* > *"Device settings"* tab > *"WiFi configuration"* button.
   For Sidexis 4: Start the *"WiFi Configuration Utility"* via the Windows start menu.

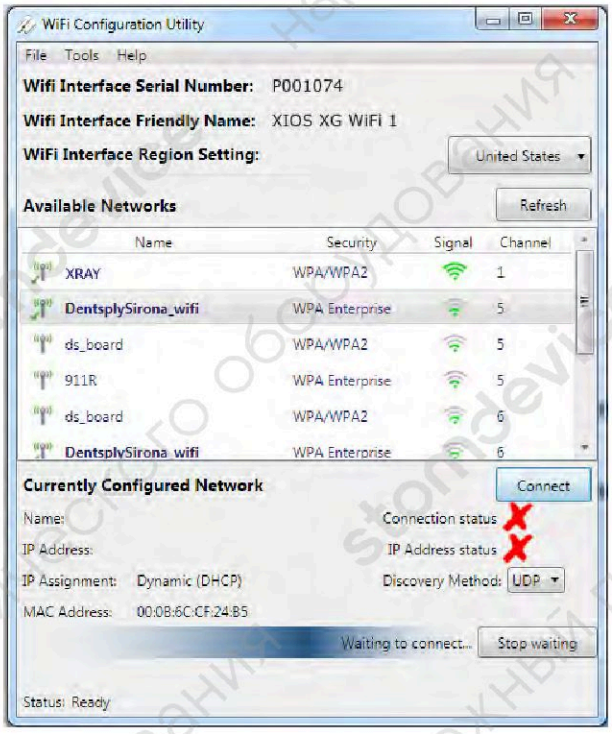


2. Select your region from the *"WiFi Interface Region Setting"* menu.
3. Select your practice's wireless network from the list and click *"Connect"*.

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4. Enter the password if you are creating a connection to a protected network.
5. Select an attribution method from the *"IP Address Configuration"* menu.
6. Click on *"Connect"*.
   ↳ A progress indicator appears on the lower edge of the window while the connection is established.



↳ A green check mark appears next to the text *"Connection status"* and *"IP Address status"* if the configuration was

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successful. The WiFi interface network data (name, IP address, IP assignment and MAC address) is displayed to the left of this. The status "Ready" is displayed in the status bar on the lower edge of the window.



7. Close the *"WiFi Configuration Utility"* window.

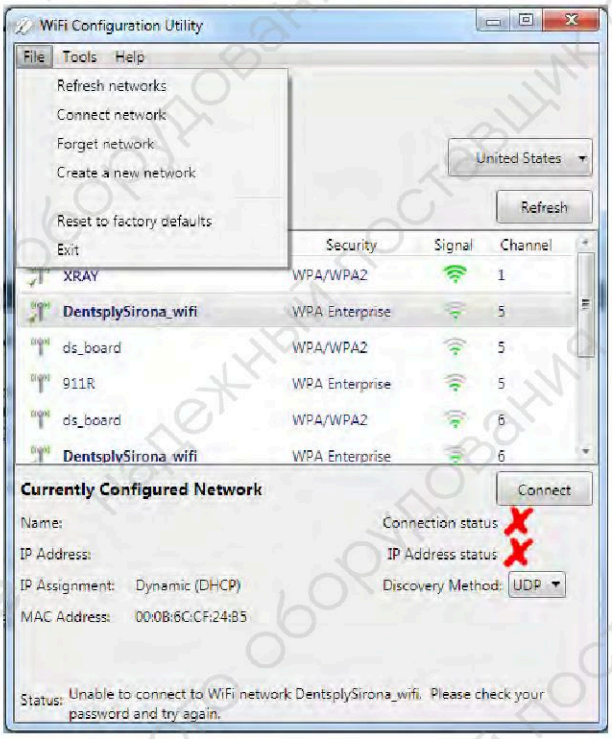
Connect the WiFi interface with a hidden wireless network

Hidden wireless networks may not be displayed in the network list. They must be entered onto the list manually first of all.

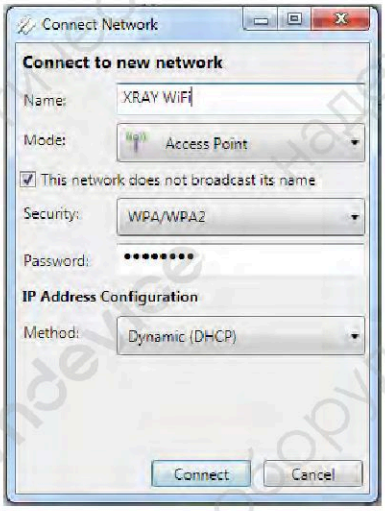
✓ The *"WiFi Configuration Utility"* window is opened.

1. In the *"File"* menu, select the menu option *"Create a new Network"*.

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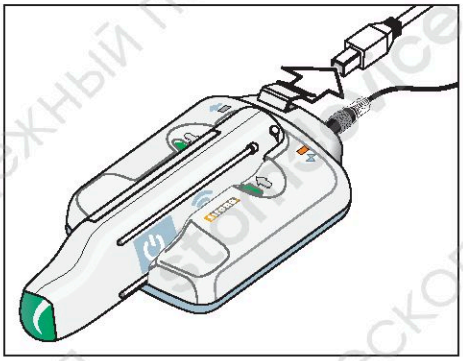
↳ The *"Connect network"* window opens.



2. Enter the network name (the SSID), password, security standard and operating type for the hidden network. Select the appropriate attribution method. Click on *"Connect"*.
   ↳ The hidden network is displayed in the network list. Now you can connect WiFi interfaces to this network.

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Disconnect the USB connection

➢ Remove the USB cable from the charger. It is no longer required after a successful configuration.

Configure WiFi interface for several networks

You can also configure WiFi interface for several networks. While doing this, observe the following:

- All networks must be operated with the same operating mode (manually or DHCP).
- In the manual operating mode, the WiFi interface has the same IP address for all networks. The networks must be operated via DHCP if a WiFi interface should be configured with different IP addresses for several networks.

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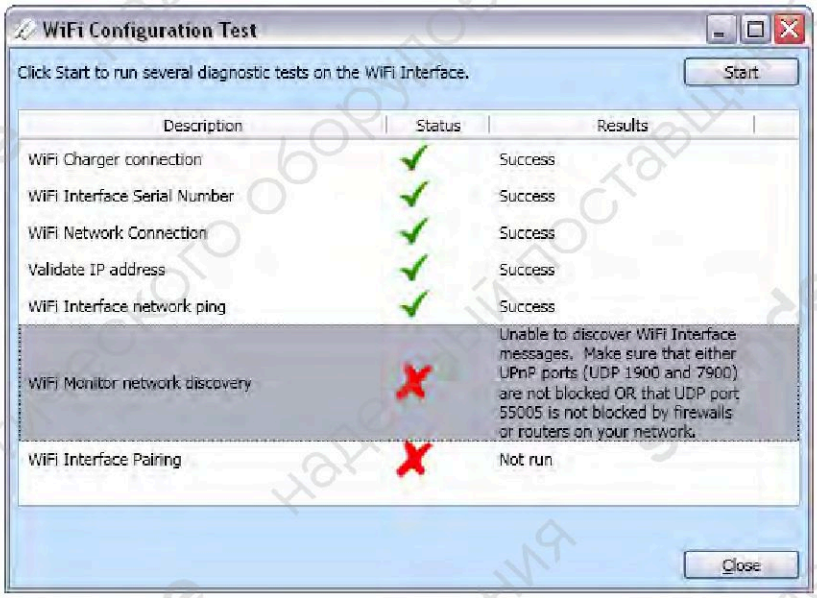
4.7 Find an error in the system configuration

4.7.1 Execute a diagnostics test

A diagnostic test can be started to support troubleshooting.

Start diagnostics test

1. Start the *"WiFi Configuration Utility"* configuration program. Start the *"SIDEXIS Manager"* and click on the *"XIOS XG Configuration"* button.
2. Select the *"Device settings"* tab and click the *"WiFi configuration"* button.
3. Open the "Tools" menu and select the entry "Run diagnostic tests...".
   ↳ The diagnostic test window opens.



4. Plug the WiFi interface into the charger before the start of the test.

Explanation of the tests

The tests are explained in brief below:

- "WiFi Charger Connection"
  Checks the USB port for the charger.
- "WiFi Interface Serial Number"
  Reads out the WiFi interface serial number.
- "WiFi Network Connection"
  Checks whether a connection can be established to a wireless network.
- "Validate IP Address"
  Checks the IP address for a wireless network.
- "WiFi Interface Network Ping"
  Checks that the PC and the WiFi interface are in the same network.
- "WiFi Monitor Network Discovery"
  Checks that you can see the WiFi interface in the "WiFi Interface-Management" window.
- "WiFi Interface Pairing"
  Checks that the PC can connect with the WiFi interface via a wireless network.

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Troubleshooting

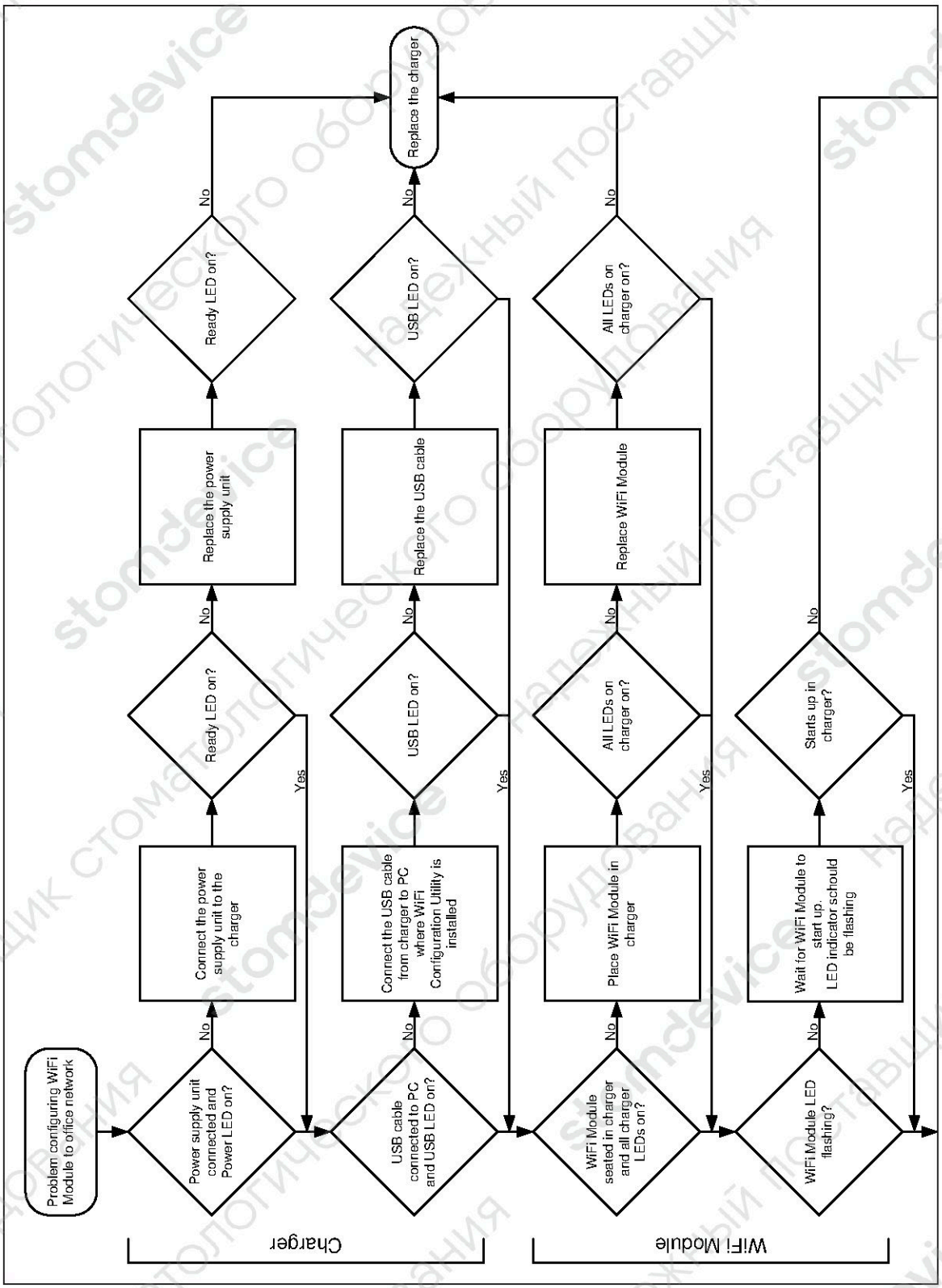
The error messages provided by the diagnostic test are explained below with tips provided for corrective action:

Diagnostic test	Error message	User action
"WiFi Charger Connection"	"Unable to communicate with charger"	Plug the WiFi interface into the charger and restart the test.
"WiFi Interface Serial Number"	no message	Plug the WiFi interface into the charger and restart the test.
"WiFi Network Connection"	"WiFi Interface is not currently connected to a WiFi network"	Check that your wireless network is listed as available in the "WiFi Configuration Utility".
"Validate IP Address"	"WiFi Interface does not currently have a valid IP address"	Ensure that you have assigned the correct IP address for the network currently configured.
"WiFi Interface Network Ping"	"Unable to ping remote WiFi Interface"	Check that the PC and the WiFi interface are located within the same network.
"WiFi Monitor Network Discovery"	"Unable to discover WiFi Interface messages"	The UPnP ports UDP 1900 and 7900 and the UDP port 55005 should not be blocked by Firewalls or routers in your network. The MarconiService may not be blocked by the Firewall, see "Check Firewall Settings" [→ 34].
"WiFi Interface Pairing"	"Unable to connect to WiFi Interface"	The TCP ports 55000 and 55001 should not be blocked by Firewalls or routers in your network. The WiFi interface can generally still be paired even if the test fails.

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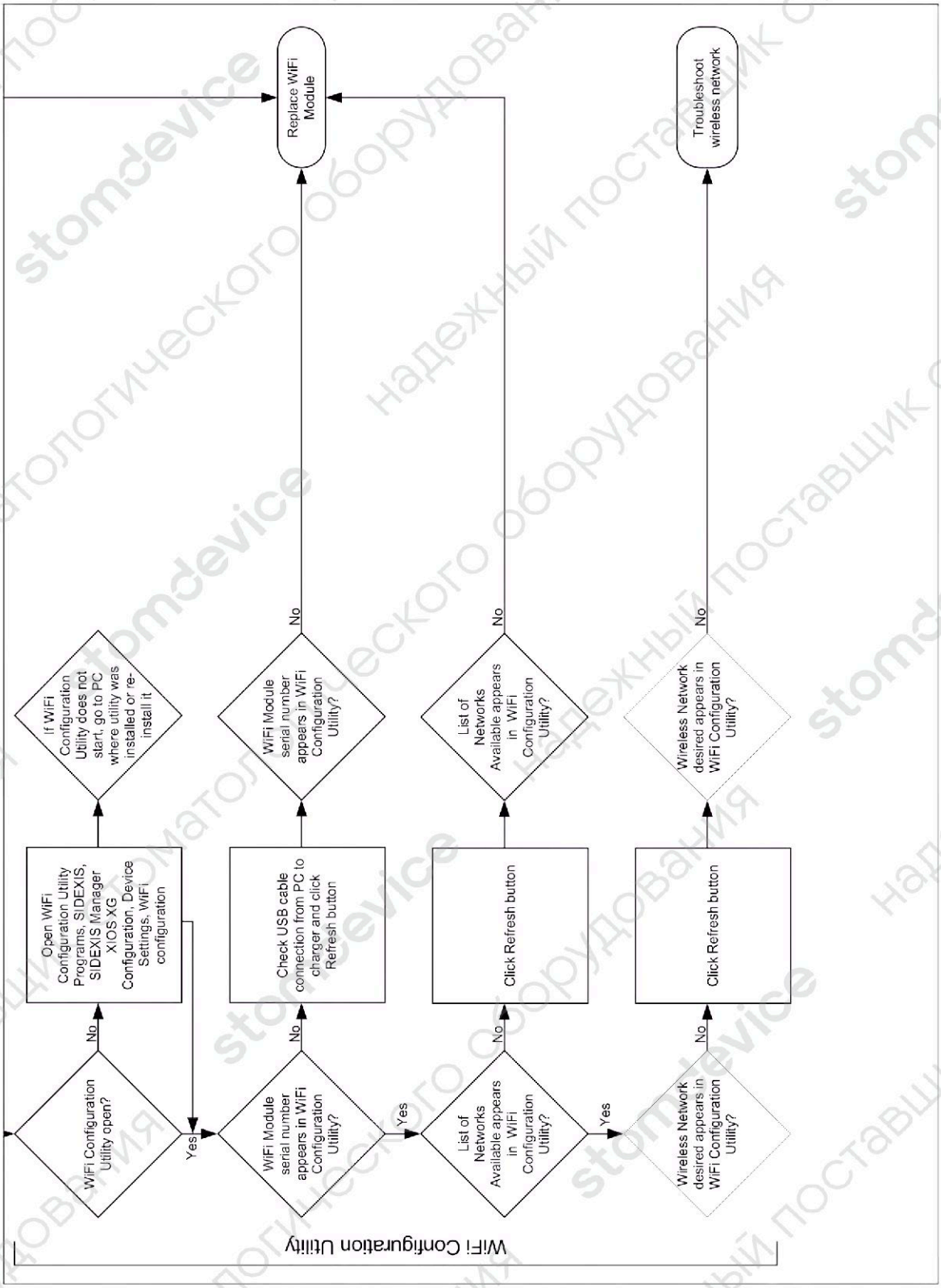
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4.7.2 Diagram for fault rectification



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4.8 Enabling the WiFi interface in SiXABCon

Only when using the SIDEXIS plug-in for XIOS XG without RFID technology:

X-ray images of WiFi interfaces can be transmitted only to PCs that are enabled for the relevant SIDEXIS XG / SIDEXIS 4 workstation as X-ray components. Release occurs in the configuration program of SiXABCon.

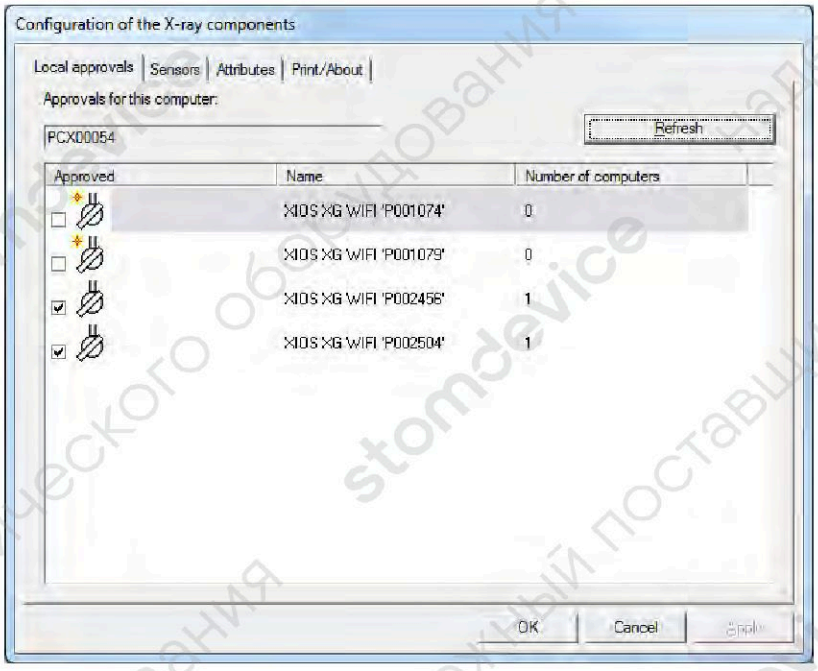
IMPORTANT

When using the Sidexis 4 Sensor Plugin and when using the SIDEXIS plug-in for XIOS XG with RFID technology:

In these cases, no release is required in SiXABCon. The XIOS XG entry does not appear in SiXABCon either.

- ✓ The SIDEXIS plug-in for the XIOS XG WiFi system is installed on the PC.
- ✓ The PC is connected with the wireless practice network.
- ✓ The WiFi interface is configured and turned on for the wireless practice network.

1. Start the SiXABCon configuration program via the *"SIDEXIS Manager"*.
2. Select the *"Local approvals"* tab.
   - ↳ The WiFi interfaces connected to the wireless network are displayed with their serial number in the list.
     The serial number appears on the housing of each WiFi interface.
   - ↳ The check box is activated for enabled WiFi interfaces. A yellow-red icon indicates WiFi interfaces that are not enabled.



3. Activate the check box for WiFi interfaces that are to transmit X-ray images to this PC.

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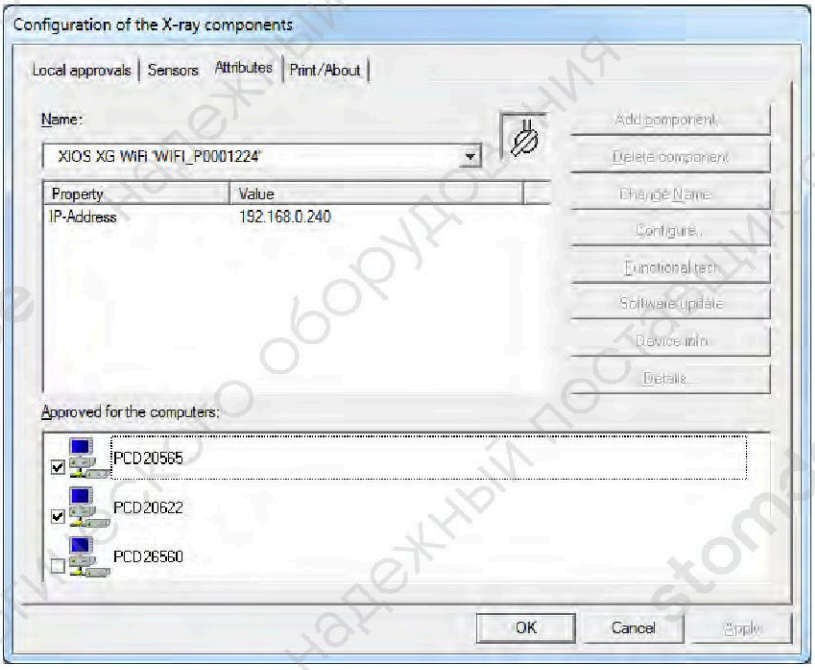
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↳ The WiFi interfaces are enabled for the PC.

4. Enable WiFi interfaces at additional SIDEXIS XG / SIDEXIS 4 workstations where necessary.

↳ The WiFi interfaces are registered in SIDEXIS XG / SIDEXIS 4.

Alternatively, the service engineer can also enable the WiFi interfaces via the *"Attributes"* tab for other *"SIDEXIS XG / SIDEXIS 4"* workstations in the network. The service password is required to make changes to this tab, see *"SIDEXIS XG / SIDEXIS 4"* Service Manual.



4.9 Pair WiFi interface with the PC

A WiFi interface can transmit X-ray images to different PCs. Equally multiple WiFi interfaces can be used for one PC. The WiFi interface must be paired with a PC in order to determine which WiFi interface transmits the images to which PC. Only one WiFi interface can be paired with one PC at the same time.

There are two options for pairing the WiFi interface with the PC when establishing exposure readiness:

- via a selection list using the serial number of the WiFi interface (standard option)
- via RFID technology (option)

IMPORTANT

The following applies only to pairing based on the serial number:

The pairing does not apply if an individual WiFi interface is operated on just one PC. The WiFi interface then needs to be merely registered as an individual X-ray component in SIDEXIS XG, see Register "WiFi interface in SIDEXIS XG" [→ 47].

Pairing via RFID technology is also required when the WiFi interface is operated only on one PC. Pairing occurs here via the RFID reader.

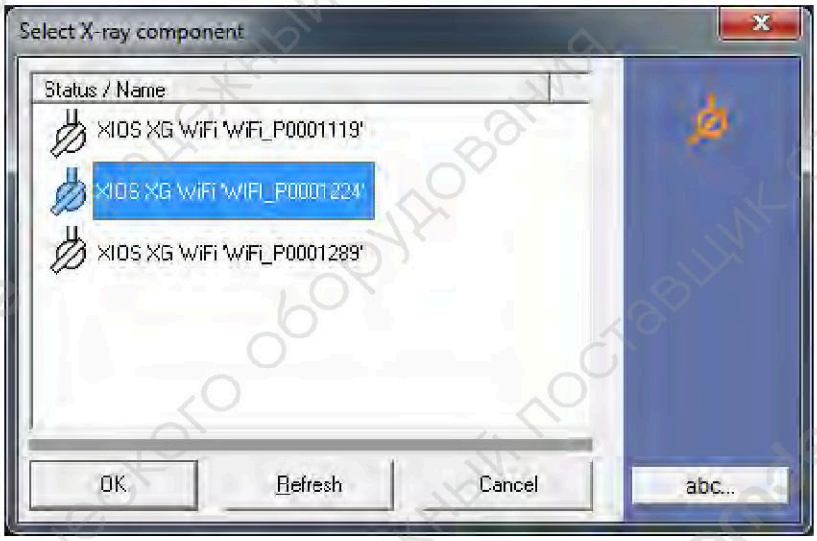
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4.9.1 Pairing via a selection list using the serial number

In the standard version of pairing, each exposure readiness is queried by the manufacturers in SIDEXIS XG / SIDEXIS 4 as to which WiFi interface is used for the exposure. The WiFi interfaces available in the wireless practice network are listed for this purpose. The WiFi interface can be selected therein, based on their serial number.

1. Establish exposure readiness for the WiFi interface in SIDEXIS XG / SIDEXIS 4, see also "Establish exposure readiness" [→ 70].



↳ The WiFi interfaces available with the wireless network are displayed with their serial number in the *"Select X-ray device"* window. The serial number is on each WiFi interface housing.

2. Select the preferred WiFi interface in the list.

Please note: WiFi interfaces already paired with a PC are marked as occupied in the selection list.

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4.9.2 Pairing using RFID Technology

RFID technology is particularly useful where multiple WiFi interfaces are being used for different PCs in the dental practice or clinic. Pairing and disconnection take place via an RFID transmitter which is in the WiFi interface. It is read by an RFID reader connected to the PC.

Plug RFID reader into the PC



The RFID reader can be connected to any USB port on the PC, including to monitors and keyboards with a USB port as well as external hubs. Select a slot that is easily accessible to the user. A brief message in the Windows information area (Systray) confirms the successful pairing. As a result the user should be able to see the monitor during the pairing.

The RFID readers for the XIOS XG WiFi system are from Sirona.

➢ Plug the RFID reader into an easily accessible USB port, e.g. on the monitor. If necessary, use the USB extension cable supplied for improved accessibility.

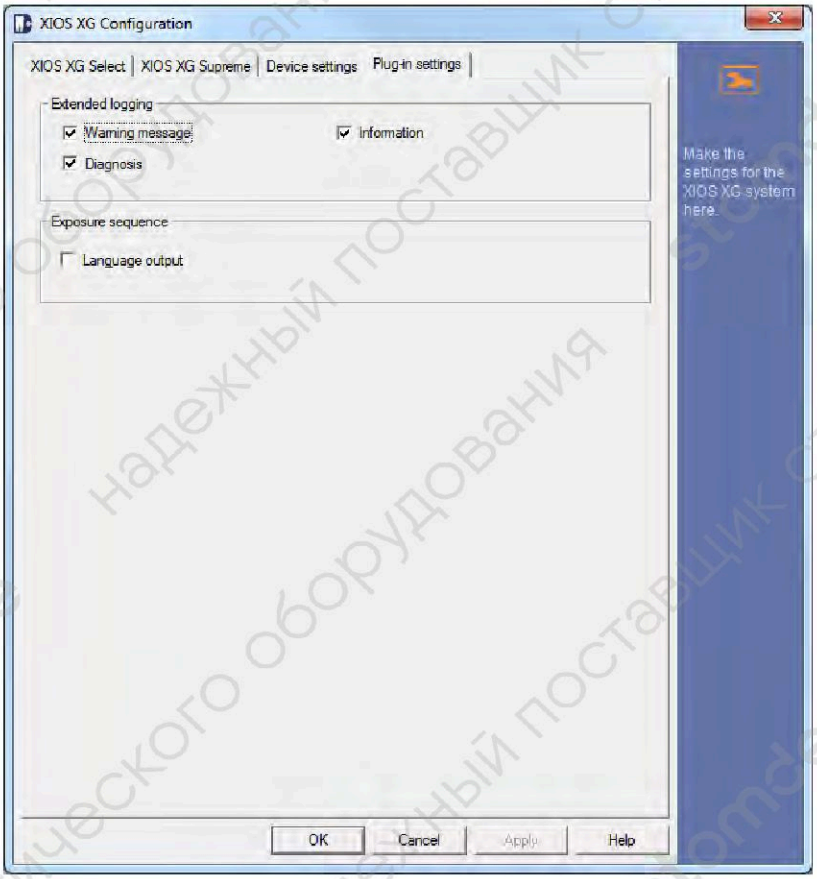
↳ The driver for the RFID reader installs automatically. A message appears in the Windows information area (Systray) after a few seconds to confirm that the driver can now be used.

Enable pairing via RFID technology

The option in the configuration program of the SIDEXIS plug-in for XIOS XG must be activated in order that the RFID technology can be used.

1. Start the SIDEXIS Manager.
2. Start the *"XIOS XG Configuration"* configuration tool.
3. Select the *"Device settings"* tab.

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4. Place a check mark for *"WiFi device selection via RFID"* in the *"Exposure sequence"* optional group and click *"Apply"*.
   ↳ The WiFi interfaces are now paired with the PC via RFID technology.

Execute pairing with the RFID technology

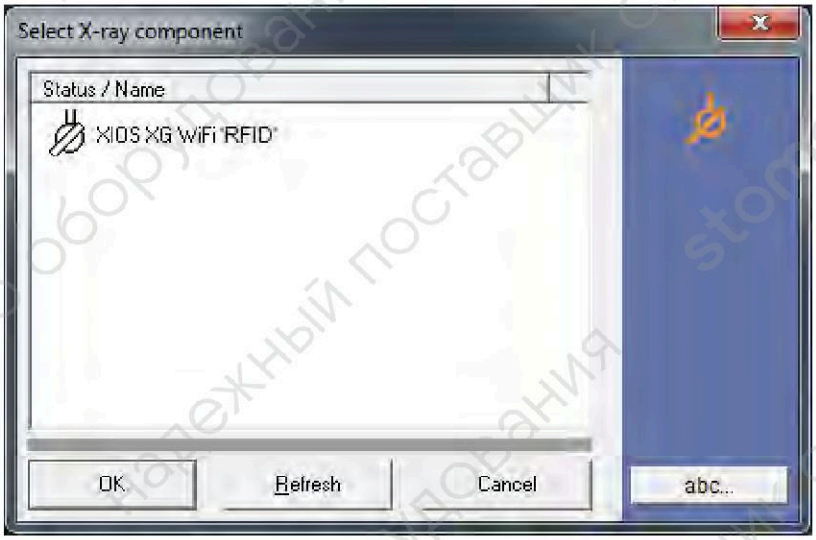


The WiFi interface must be held at the RFID reader for pairing.

1. Establish exposure readiness for the WiFi interface in SIDEXIS XG / SIDEXIS 4, see also "Establish exposure readiness" [→ 70].
   ↳ In the *"Select X-ray device"* window, the XIOS XG WIFI 'RFID' entry is displayed instead of the WiFi interfaces and their serial number.

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2. Hold the wireless symbol on the ON/OFF button of the WiFi interface directly at the RFID reader.
   ↳ The text "Tag read completed" appears briefly over the info area of the Windows taskbar (Systray). The WiFi interface is paired with the PC.

4.9.3 Remove pairing

If the WiFi interface is paired with the PC via the selection list using the serial number (standard version), the pairing is automatically removed again after the exposure.

If RFID technology is used for the pairing, the pairing continues with the PC until the WiFi interface is held on the RFID reader of another PC.

The pairing is also removed where:

- the WiFi interface is switched off by pressing the On/Off button or it switches automatically to standby following a preset period (the period up until automatic switch-off can be adjusted).
- the paired PC is shut down

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4.10 Connecting the sensor

A calibration file is saved on the XIOS XG Select and XIOS XG Supreme sensors which is transferred to the PC the first time that the sensor is used.

✓ The WiFi interface is configured for the practice network.

1. Start SIDEXIS XG / SIDEXIS 4.
2. Plug the connector of the sensor into the WiFi interface.
3. Register a patient in SIDEXIS XG / SIDEXIS 4 and establish readiness for intraoral exposures.
   ↳ A sensor calibration file is installed automatically if you are using the XIOS XG Select or XIOS XG Supreme sensor on this PC for the first time. If this does not occur and no exposure readiness is established, disconnect the sensor from the WiFi interface and plug the cable in again.

4.11 Complete test exposures/acceptance tests

A test exposure must be completed after installing a new WiFi interface or a new sensor.

See operating instructions for the sensor.

In Germany (Austria and Switzerland), an acceptance test should be performed by an authorized technician of a specialist dealer.

Perform test exposures on a test specimen, see Consumables and spare parts [→ 108]. Do not perform test exposures on a patient.

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4.12 Web Server and Upgrade Utility page

Functional scope overview

The Web Server and Upgrade Utility page is split up into multiple tabs which cover the following functions:

- "Status"
  Status display for the WiFi interface
- "Firmware Upgrade"
  Firmware upgrade installations
- "Diagnostic"
  Diagnostic tests completed
- "Settings"
  User-defined settings display

"Status"

The software version and date information, WiFi interface serial number and sensor information are displayed in "Status" (where a sensor is connected to the WiFi interface).

"Firmware Upgrade"

Firmware upgrades contain the latest enhancements for your product. We recommend that you install these urgently. The upgrades are easy to complete, meaning that the user is able to manage this themselves. There are three different types of upgrade:

- Flash upgrade for the WiFi interface
- FPGA upgrade for the WiFi interface (Field-programmable gate array)
- Firmware upgrade of the sensor

Although we recommend that the WiFi interface is plugged into the charger for Flash and FPGA upgrades, these upgrades can also be completed with the device outside the charger. In this case the charge state for the storage battery must be 50% or higher in order to ensure that the power supply is not interrupted during the upgrade process. The high amount of power required in the upgrade process can quickly drain the storage battery, resulting in an incomplete upgrade and preventing the device from restarting.

"Diagnostic"

The diagnostic tests include a bandwidth test which measures how quickly an image can be transferred from the WiFi interface to the PC and displayed.

"Settings"

The Settings include the user-defined settings.

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4.12.1 Flash Upgrade

IMPORTANT

Plug the WiFi interface into the charger for the following steps.



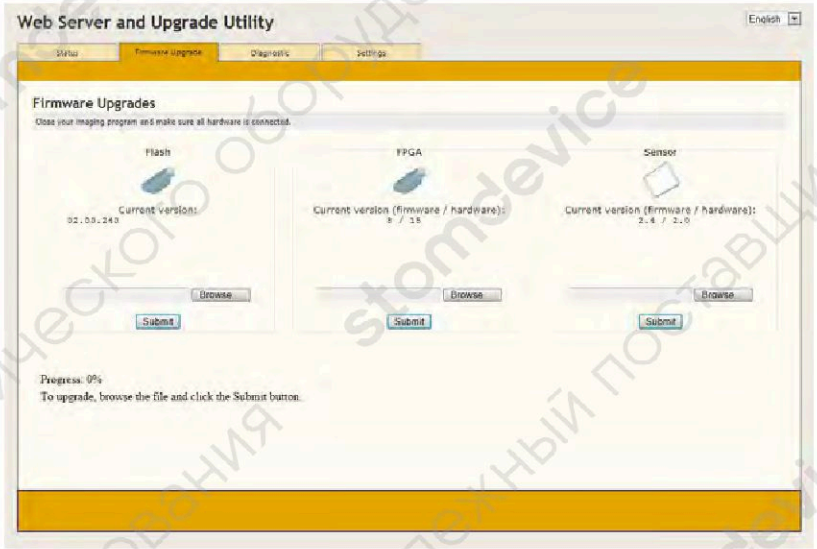
1. Click on the "Wireless Monitor" symbol in the info area of the Windows taskbar (Systray) and select the "WiFi Interface Management" entry.
   ↳ A list opens with the WiFi interfaces found in the wireless network. It can take up to 25 seconds until all WiFi interfaces are listed. The WiFi interfaces are named after the unit serial number in the list.



2. Select the WiFi interface that is to receive an upgrade from the list. Ensure that the WiFi interface is *not* paired with the PC.
3. Right-click on the desired WiFi interface and select the entry "Open Device Web Interface" in the context menu.

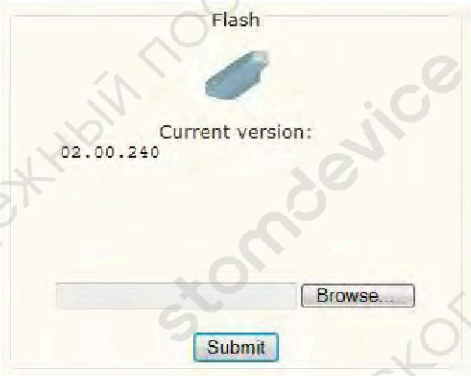


   ↳ The "Web Server and Upgrade Utility" page is displayed.
4. Click the "Firmware Upgrade" tab.

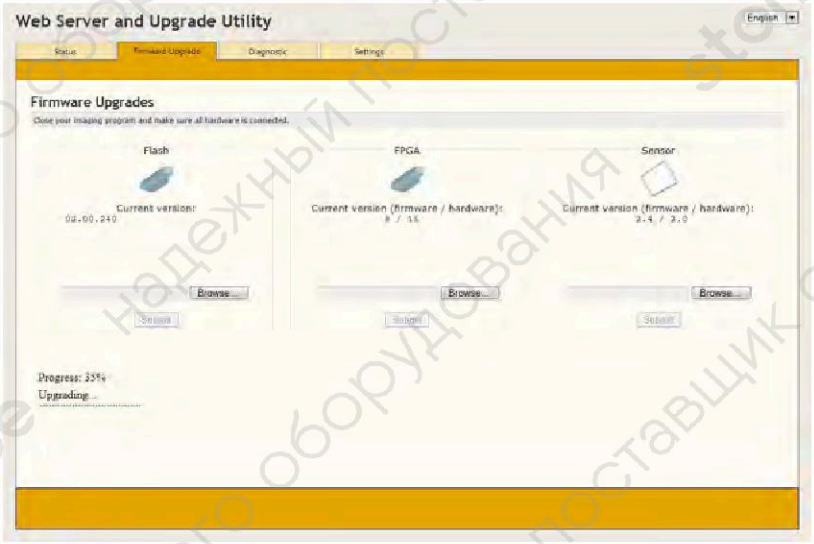


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5. In the "Flash" group click on "Browse" and open the "uImage" file. It is provided on a CD or via an Internet download.
6. Click the "Submit" button (only once).
   ↳ Follow the progress indicator at the lower edge of the "Web Server and Upgrade Utility" page.



7. The WiFi interface automatically reboots once the Firmware upgrade has been fully completed. After the reboot wait approx. 10 seconds until the LED starts to flash.
8. Update your Internet browser window by pressing F5 on the keyboard and check the updated Firmware version. In this example it is 02.00.250.
9. Return to "WiFi Interface Management" window. Ensure that the updated WiFi interface is still on the list of units detected.
10. Pair the updated WiFi interface with the PC to check its function.





11. Complete various test exposures to check the image quality.

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4.12.2 FPGA Upgrade

FPGA = Field-programmable gate array

IMPORTANT

Plug the WiFi interface into the charger for the following steps.



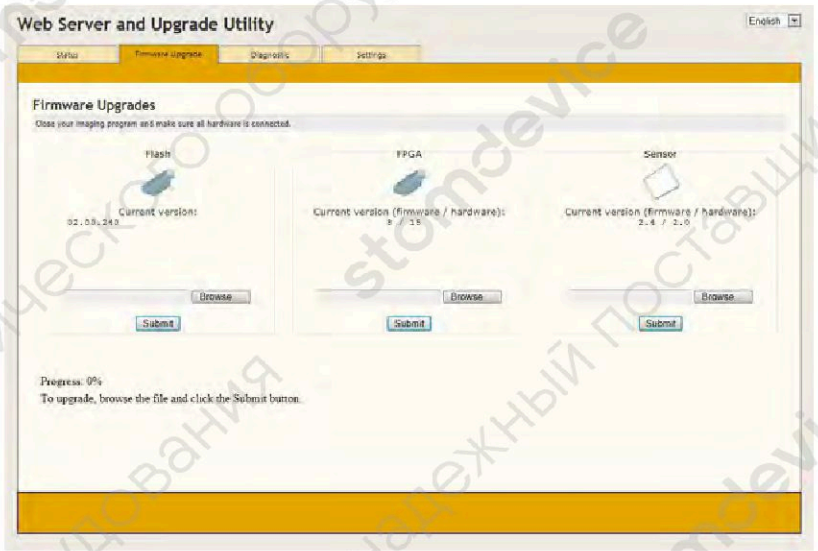
1. Click on the "Wireless Monitor" symbol in the info area of the Windows taskbar (Systray) and select the "WiFi Interface Management" entry.
   ↳ A list opens with the WiFi interfaces found in the wireless network. It can take up to 25 seconds until all WiFi interfaces are listed. The WiFi interfaces are named after the unit serial number in the list.



2. In the list select the WiFi interface that is to receive an upgrade. Ensure that the WiFi interface is *not* paired with the PC.
3. Right-click on the desired WiFi interface and select the entry "Open Device Web Interface" in the context menu.



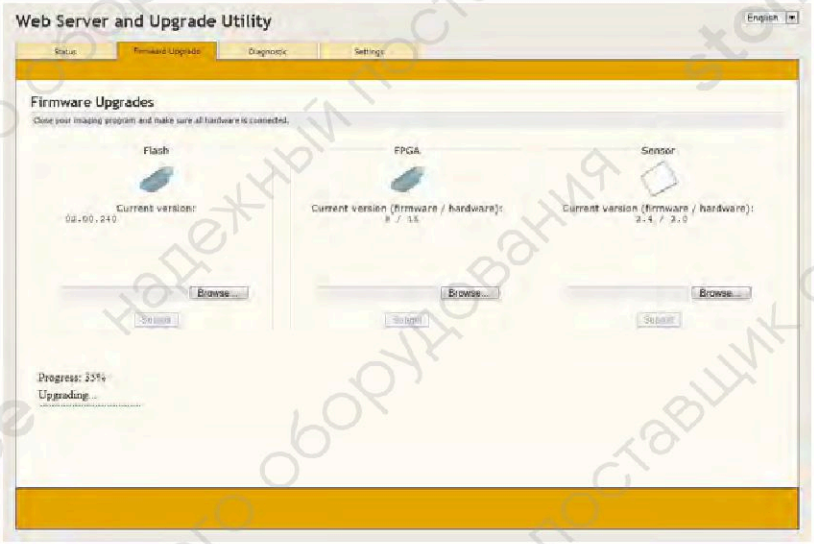
   ↳ The Web Server and Upgrade Utility page is displayed.
4. Click the "Firmware Upgrade" tab.



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5. In the "FPGA" group click on "Browse" and open the ".dat" file. It is provided on a CD or via an Internet download.
6. Click on the "Submit" button (once only).
   ↳ Follow the progress indicator at the lower edge of the Web Server and Upgrade Utility page.



7. The WiFi interface automatically reboots once the Firmware upgrade has been fully completed. After the reboot wait approx. 10 seconds until the LED starts to flash.
8. Click on the "Back" button in the Internet browser when the successful upgrade message appears.
9. Update your Internet browser window by pressing F5 on the keyboard and check the updated Firmware version. In this example it is "8".



10. Switch back to the "WiFi Interface Management" window. Ensure that the updated WiFi interface is still on the list of units detected.
11. Pair the updated WiFi interface with the PC to check its functionality.



12. Complete various test exposures to check the image quality.

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4.12.3 Sensor Upgrade

IMPORTANT

The WiFi interface may not be in the charger tray for the following steps.

1. Switch the WiFi interface on and wait 10 seconds until the LED flashes.
2. Connect the sensor that is to receive an upgrade to the WiFi interface.
3. Click on the "Wireless Monitor" symbol in the info area of the Windows taskbar (Systray) and select the "WiFi Interface Management" entry.



   ↳ A list opens with the WiFi interfaces found in the wireless network. It can take up to 25 seconds until all WiFi interfaces are listed. The WiFi interfaces are named after the unit serial number in the list.

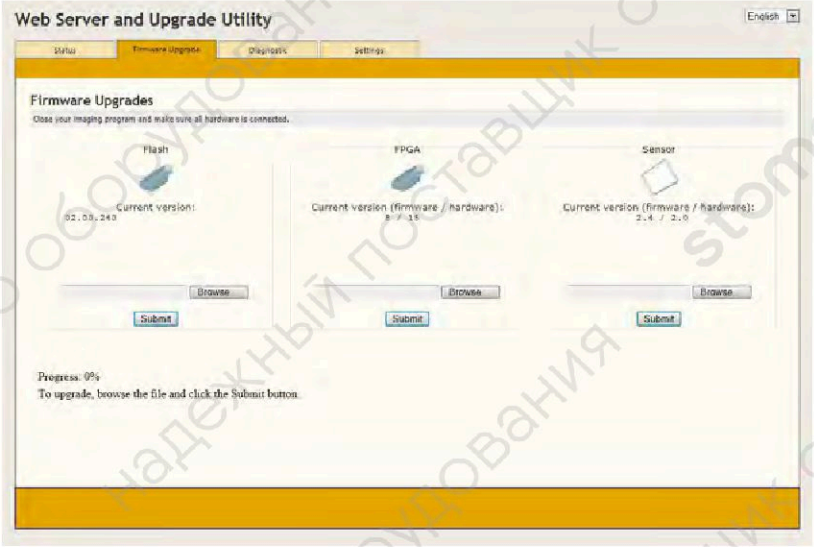


4. Select the WiFi interface that is to receive an upgrade from the list. Ensure that the WiFi interface is *not* paired with the PC.
5. Right-click on the desired WiFi interface and select the entry "Open Device Web Interface" in the context menu.

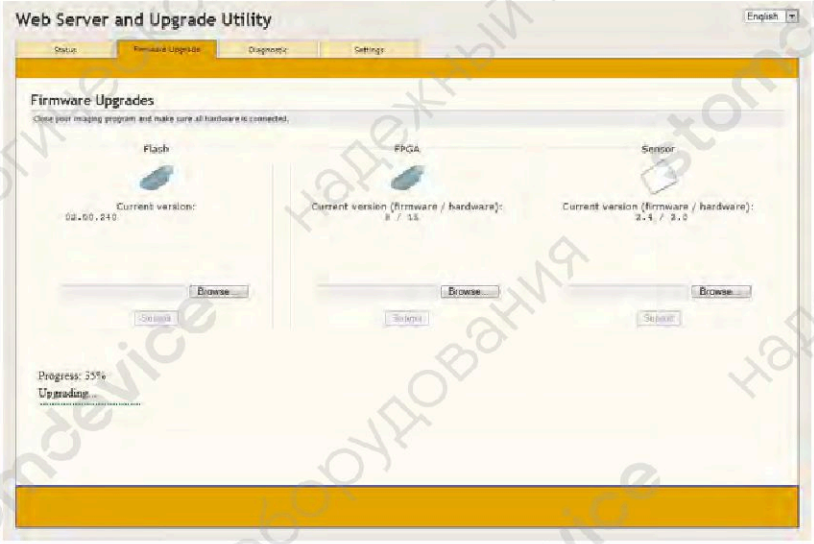


   ↳ The "Web Server and Upgrade Utility" page is displayed.
6. Click the "Firmware Upgrade" tab.

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7. Click the "Browse" button in the "Sensor" group and open the ".hex" file. It is provided on a CD or via an Internet download.
8. Click the "Submit" button (only once).
   ↳ Follow the progress indicator at the lower edge of the "Web Server and Upgrade Utility" page.



9. The WiFi interface automatically reboots once the Firmware upgrade has been fully completed. After the reboot wait approx. 10 seconds until the LED starts to flash.
10. Click the "Back" button in the Internet browser when the upgrade successful message appears.
11. Update your Internet browser window by pressing F5 on the keyboard and check the updated Firmware version. It is "2.4" in this example.
12. Return to "WiFi Interface Management" window. Ensure that the updated WiFi interface is still on the list of units detected.
13. Pair the updated WiFi interface with the PC to check its function.



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14. Complete various test exposures to check the image quality.

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4.12.4 Set the WiFi Interface

Changing these settings is not recommended by Sirona.

IMPORTANT
Ensure that the WiFi interface is marked as "Available" in the "WiFi Interface Management" window when adjusting the settings.

The user-defined settings can be accessed via the "Web Server and Upgrade Utility" tab.

Although changing these settings is optional it is explained here in order to improve your use of the WiFi system. While other enhancements can only be implemented in future software versions the following items are already available:

- Use display names (friendly names) to identify your WiFi interfaces
- Change the time until automatic power timeout ("power timeout")
- Enable automatic pairing ("auto-pairing") to connect a certain WiFi interface with the PC

Display names

You can provide the WiFi interfaces in your practice with display names so that they can be found easily in the selection dialog.

These display names are displayed in the devices selection dialog, the exposure readiness dialog and SiXABCon.

If display names have been assigned for the WiFi interfaces then this information is displayed in the "WiFi Interface Management" window. This way you will know immediately which units are at status "paired", "available" or "charging". The display names can be made up of any combination of letters and numbers, but not symbols or spaces which are not supported at present.

Automatic power timeout

Power management for the WiFi interface is crucial in ensuring that the unit is ready for exposures when you need it. If the unit is not in use and is also not plugged into the charger then it is on standby and after 15 minutes it switches off automatically (default setting). The time until automatic power timeout can be adjusted.

To change the display name and/or the value for the automatic power timeout, double-click on the text field to select the current value. Enter the new value and click Save in order to keep the changes.

Automatic pairing

Connecting a WiFi interface with a PC automatically each time is also possible. You may wish to do this where you want to use a certain WiFi interface with a certain PC in each case. Manual pairing is no longer possible where this setting is selected.

IMPORTANT
Using automatic pairing provides benefits in smaller dental practices. Using automatic pairing is not advisable where WiFi interfaces are routinely used at different PCs in the practice.

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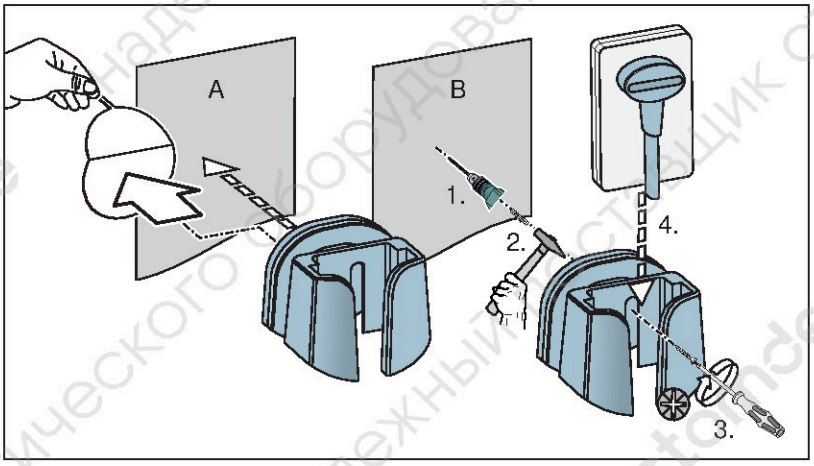
If you have decided to operate a certain WiFi interface exclusively with a certain PC then this assignment cannot be overwritten by the RFID identification for as long as automatic pairing is switched on.

4.13 Install holders and a patient clip

There are accessories available to protect the components of the XIOS XG WiFi system from damage and to keep them close at hand.

4.13.1 Wall holder for sensors

The sensor is easily accessible and protected from accidental damage at all times with the sensor wall holder.



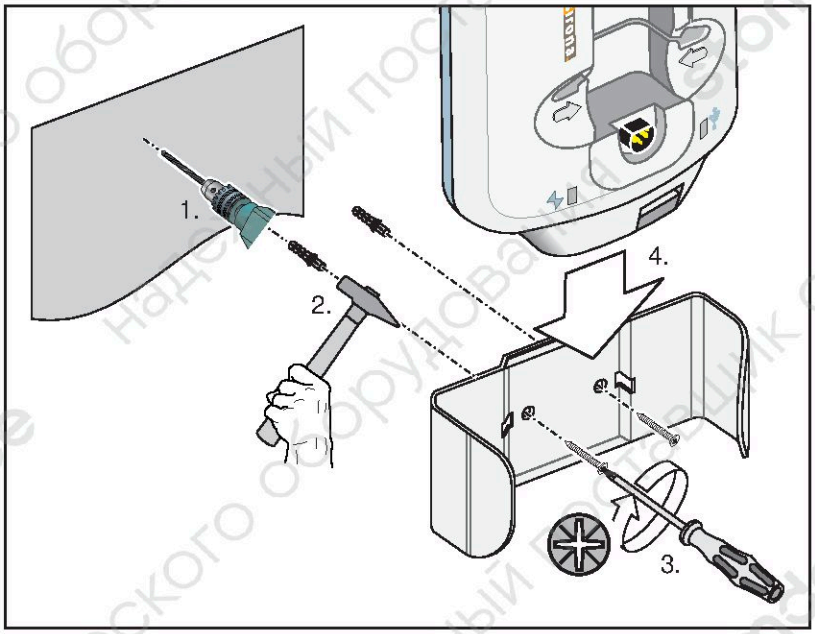
The holder can be fastened on a wall using double-side adhesive tape or a flat head screw and a dowel (supplied). When positioning the sensor ensure that there is adequate clearance to the ground and that the sensor cable is able to hang down freely.

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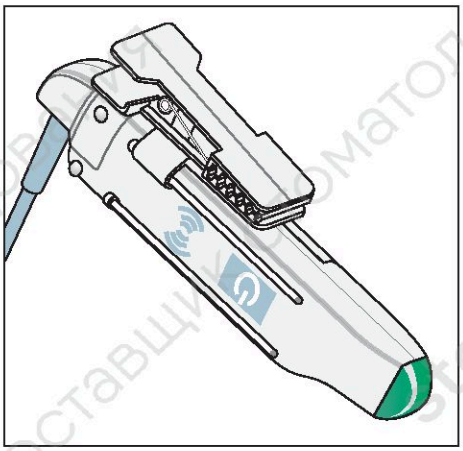
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4.13.2 Wall holder for the charger

The wall holder for the charger also ensures accessibility and protection. The holder can be fastened on a wall using double-side adhesive tape or flat head screws and dowels (supplied).



4.13.3 Patient clip for the WiFi interface



The patient clip for the WiFi interface is designed for use on lead aprons for X-ray examinations. It is used to store the WiFi interface temporarily while working on the treatment unit, thereby enabling rapid access.

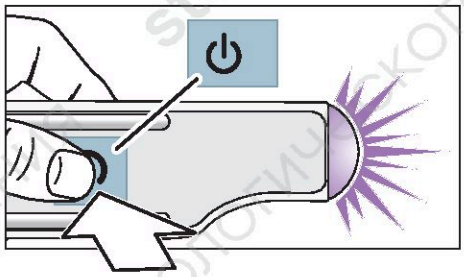
1. Slide the patient clip on the WiFi interface guide rails. A catch at the end of the guide rails prevents the WiFi interface from detaching from the clip.
2. The patient clip can remain fitted when the WiFi interface is being used. Please remove the patient clip when the WiFi system is not being used and place the WiFi interface in the charger so that it can charge and be ready for the next examination.

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5 Operation

5.1 Switch WiFi interface on/off



✓ The WiFi interface is set up according to the instructions in the "Installation" chapter.

1. Remove the WiFi interface from the charger.
2. Plug the sensor cable into the WiFi interface.
3. If the WiFi interface is switched off (LED is not flashing), press the switch on the WiFi interface and wait until the startup sequence has completed. This can take up to 15 seconds. Once this has occurred the LED lights up a purple color initially and then starts to flash. The color depends on the charge state for the storage battery. The flashing frequency shows the connection status of the WiFi interface. See "Determine device status" [→ 66].
4. If you use multiple WiFi interfaces in your practice: Ensure that the WiFi interface to be used is paired with the desired PC, see "Pair WiFi interface with the PC" [→ 48].

Keep the switch pressed down for 6 seconds to switch the USB module off. This cancels the pairing with the PC.

Please remove the holder or the patient clip when the WiFi system is not being used and place the WiFi interface in the charger so that it can charge and be ready for the next examination. In the case of pairing using the RFID technology, it also retains pairing with the PC.

If the WiFi interface is not replugged into the charger, it times out automatically after a specific time, see "Set WiFi interface" [→ 62].

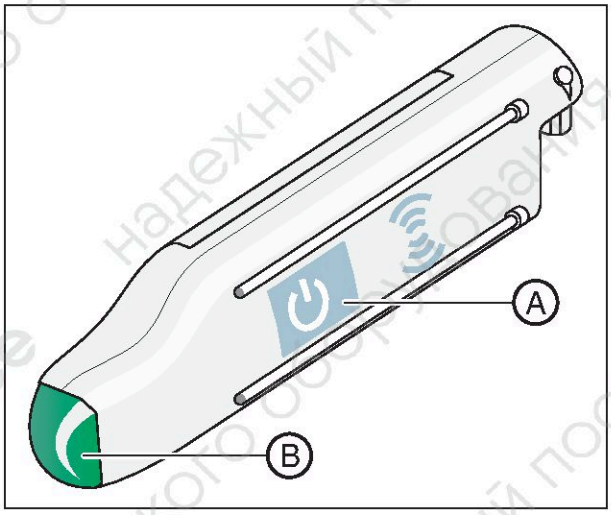
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5.2 Determine unit status

5.2.1 LED displays on the WiFi interface

The WiFi interface is fitted with a multi-color LED. The charge state for the storage battery and the unit status can be determined using the light color and the flashing signals.



A	On/Off switch
B	Multi-color LED display

Light colors

When in operation the LED is green where the storage battery is fully charged, with a red light showing where the storage battery is dead.

LED color	Storage battery charge state
green	100 - 70 %
Yellow	69 - 40 %
orange	39 - 1 %
Red	dead

When the module is switched on, the LED lights up purple until the startup sequence has completed. The light is blue during the Firmware update.

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purple	Startup sequence
Blue	Firmware update

Flashing signals

The connection status for the WiFi interface can be read using the flashing signals.

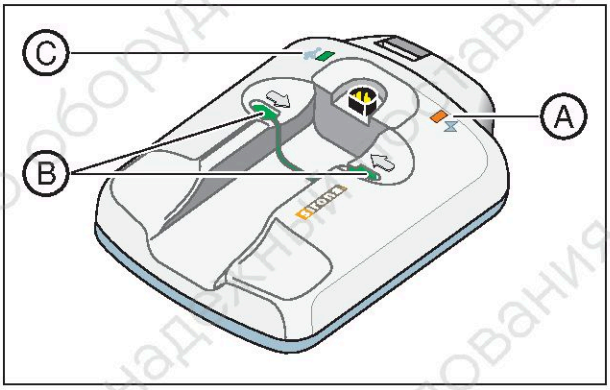
Unit status	LED display	
	No sensor connected	**Sensor connected**
Search for wireless connection	brief flashing every half second	
Not paired, waiting for pairing	long flashing followed by short double-flashing	
Pairing in operation	Continuous light (no flashing)	
WiFi interface paired with the PC	brief flashing every second	Ready for exposure, LED is lit up from dimmed to bright ("breathing")
Image data is being transferred	Fast flashing	

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5.2.2 LED displays on the charger

The charger is fitted with three LED displays.



A	Ready LED The power supply unit is connected to the charger, see "Connect charger" [→ 36].
B	Connection LED The WiFi interface is plugged into the charger, see "Charge the WiFi interface storage battery" [→ 69].
C	USB LED The WiFi interface is connected to a PC via a USB interface, see "Configure WiFi interface for the practice network" [→ 37].

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5.3 Charge the WiFi interface storage battery

Please remove the holder or the patient clip when the WiFi system is not being used and place the WiFi interface in the charger so that it can charge and be ready for the next examination.

⚠ CAUTION

If the LED is red the storage battery charge may not be adequate for completing an X-ray exposure.

The exposure would have to be repeated.

➢ Plug the WiFi interface back into the charger before the LED turns red, see also "Determine unit status" [→ 66].

NOTICE

External power supply

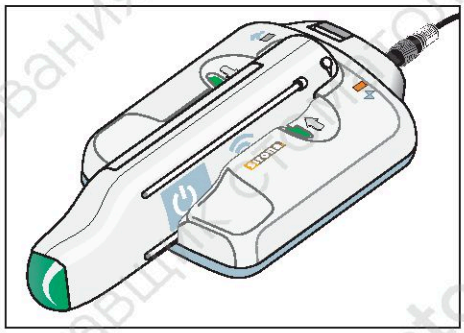
Please only use the power supply unit supplied with REF 6404425 for the external power supply for the charger. Ensure that the power supply unit and the plug contacts are suitable for use in your country.

IMPORTANT

Avoid long charging times

A storage battery which is completely drained requires considerably longer charging time for a recharge. Charging normally takes around one hour. If the storage battery is very heavily or completely drained it may take up to three hours before it is fully charged again.

Please also observe the general safety instructions, see section "Storage battery" [→ 12].



1. Connect the power supply unit supplied with the delivery to the charger.
   ↳ The power LED lights up.
2. Remove the holder or patient clip from the WiFi interface.
3. Plug the WiFi interface into the charger slot.
   ↳ The charger will have a permanent green LED display for as long as the WiFi interface is plugged in.
   ↳ The WiFi interface storage battery is charged depending on the charge state. The LED on the WiFi interface lights up green once the storage battery is full.

The storage battery must be replaced once it has been exhausted and there is only enough charge remaining for a few X-ray exposures. The WiFi interface will soon no longer be capable of transferring the images to the PC wirelessly. The procedure for exchanging the storage battery can be found in the section "Exchange the WiFi interface storage battery" [→ 106].

The USB LED on the charger only lights up where the USB cable is connected for the initial configuration. The USB cable can be removed from the charger following configuration.

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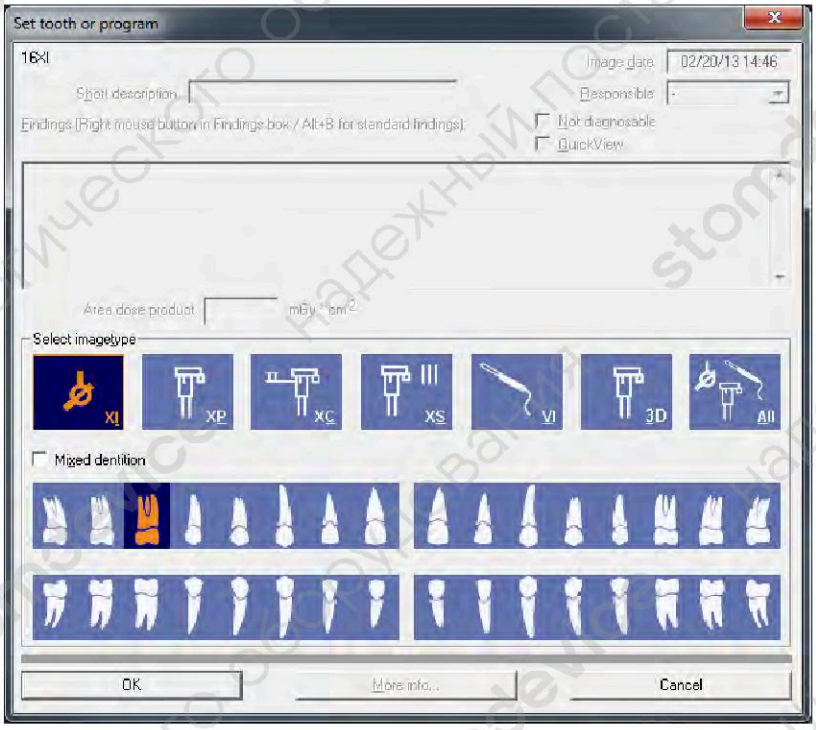
5.4 Enabling exposure readiness

The WiFi-Interface must be paired with the PC for creating exposure readiness. For details on registration in SIDEXIS XG / SIDEXIS 4 and pairing, please refer to the sections "Register WiFi interface in SIDEXIS" [→ 47] and "Pair WiFi interface with the PC" [→ 48].

✓ The WiFi interface and the sensor are set up according to the instructions in the "Installation" [→ 32] chapter.

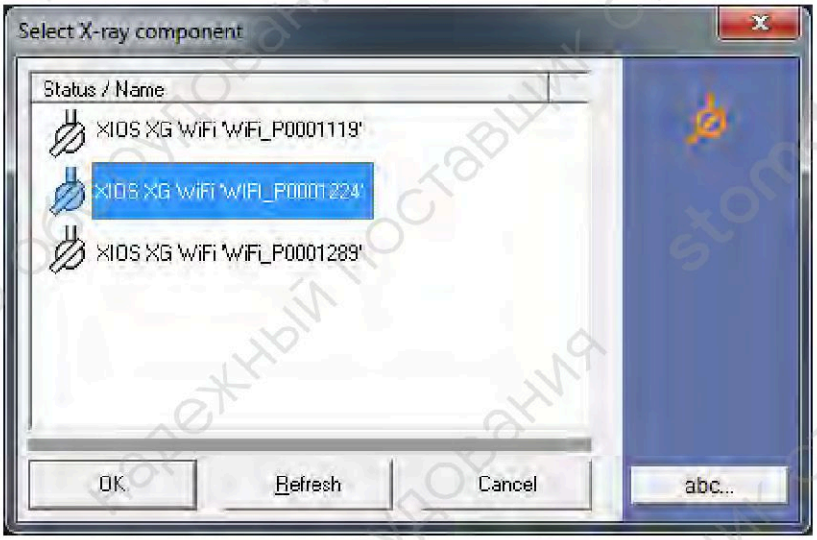
✓ The WiFi interface is set and sufficiently charged (LED lights up yellow or green).

1. Connect a sensor to the WiFi interface.
2. Register the patient in SIDEXIS XG / SIDEXIS 4. Detailed information can be found in the SIDEXIS XG / SIDEXIS 4 operator's manual.
3. Establish exposure readiness for intraoral exposures. Click on the *"[I]ntraoral X-ray"* button.
   ↳ The *"Set tooth or program before exposure"* window opens. The intraoral exposure is selected as the image type.



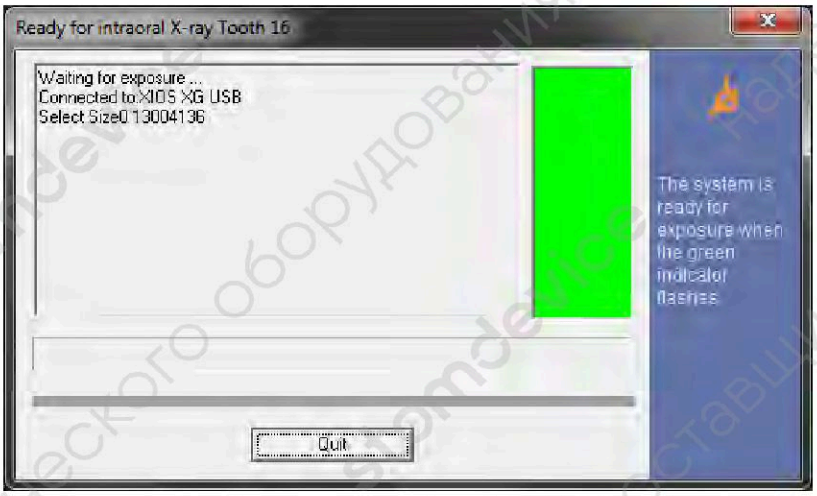
4. Click on the tooth for which the intraoral exposure is being produced. Information on the tooth displays can be found in the SIDEXIS XG / SIDEXIS 4 operator's manual. Confirm your selection with the *"OK"* button.
   ↳ If multiple intraoral X-ray systems are registered in SIDEXIS XG / SIDEXIS 4 then the *"Select X-ray device"* window appears to pair the PC with a WiFi interface.

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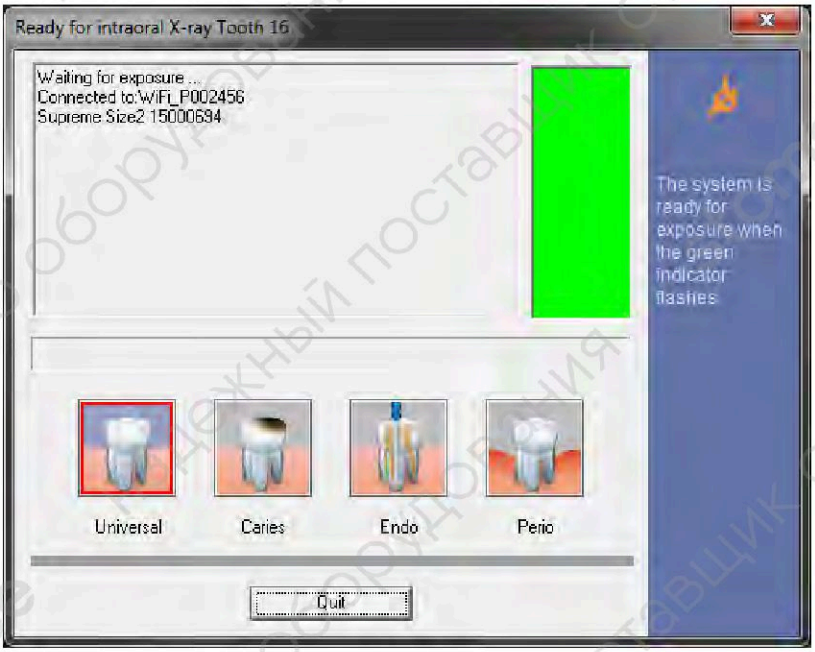
5. Select the corresponding X-ray system.
Without RFID technology: The WiFi interfaces available with the wireless network are displayed with their serial number in the *"Select X-ray device"* window. The serial number is on each WiFi interface housing. If the desired WiFi interface is not listed in the window, click the *"Refresh"* button. Where necessary check the wireless connection to the WiFi interface. Confirm your selection with the *"OK"* button.
With RFID technology: The XIOS XG WIFI 'RFID' entry appears in the *"Select X-ray device"* window. Hold the wireless symbol on the ON/OFF button of the WiFi interface directly at the RFID reader.
↳ The *"Exposure readiness "* window is displayed. *"SIDEXIS XG / SIDEXIS 4"* is ready for exposures when the green display is flashing here.



"Exposure readiness " window when using a "XIOS XG Select" sensor

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"Exposure readiness " window when using a "XIOS XG Supreme" sensor

6. When using a XIOS XG Supreme sensor: Select the desired filter to be applied to the x-ray image produced depending on the indication. The selection can also be changed after the exposure.
   ↳ The button for the selected image filter is shown inside a red frame. The *"Universal"* image filter is pre-selected by default.

↳ The LED is lit up from dimmed to bright ("breathing") on the WiFi interface. The WiFi interface is now also ready for exposures. The exposure can be released now.

⚠ WARNING

Exchange / connect sensor to WiFi interface

You may exchange or connect the sensor to the WiFi interface until the radiation is triggered. The sensor can also be exchanged when the exposure readiness is already created.

The image data are lost if you disconnect the sensor from the WiFi interface after the radiation was triggered, and the image has not been transmitted yet.

➢ Do not disconnect the senor from the WiFi interface before the image data is transmitted to SIDEXIS XG / SIDEXIS 4

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5.5 Sliding the hygienic protective sleeve over the sensor

Hygienic protective sleeves are available depending on the size of the sensor (0, 1 or 2). They fit both XIOS XG Select and XIOS XG Supreme sensors.

To reorder the hygienic protective sleeves, see"Consumables and spare parts".

⚠ WARNING

Sensors and sensor cables must be disinfected prior to initial use.

Patients may become sick due to components that have not been disinfected.

- ➢ Remove the sensor connector from the unit.
- ➢ Clean the sensor and the sensor cable thoroughly with disinfectant at least twice. Refer to Hygiene [→ 101].

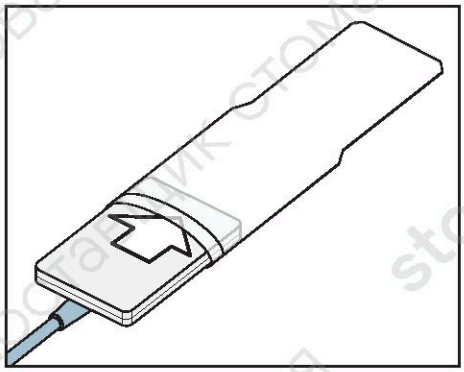


⚠ WARNING

The hygienic protective sleeves and sensor holder tabs are single use devices.

Patients may become sick due to unsterilized accessories.

- ➢ Replace the hygienic protective sleeves and sensor holder tabs after each patient. However, they can be used multiple times on the same patient. The adhesive on the sensor holder tabs is suitable for gluing and detaching them from the hygienic protective sleeve repeatedly.
- ➢ Under no circumstances should you slide a hygienic protective sleeve over a sensor where a sensor holder tab is already glued on it.



1. Please select a hygienic protective sleeve with a size that matches the sensor.
2. Slide the Sensor into the Sheath
   - ↳ The hygienic protective sleeve is slightly undersized, so that it surrounds the sensor tightly and prevents the sensor from slipping out of place.

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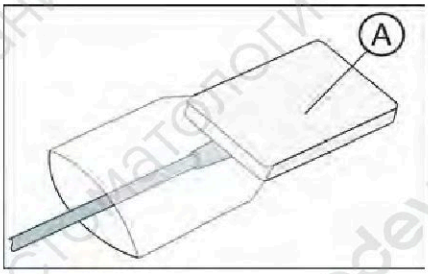
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5.6 Position the sensor

Since the positioning of the sensors in the beam path of the cone strongly influences the image quality, using the parallel technique with the XIOS XG sensor holder system or with the #AimRight# sensor holder system is recommended for optimal positioning of the sensors.

With the XIOS XG sensor holder system the sensor is affixed to the sensor holder with a sensor holder tab. Sensor holder tabs may be detached and reaffixed several times during an exposure series on the same patient. The sensor holder tabs must be glued to the active sensor surface (A) in all cases.

The #AimRight# sensor holder system is a plug-in system. No sensor holder tabs are required.



NOTICE

The sensor cable is sensitive to mechanical influences.

The cable may become damaged or may wear out prematurely.

- ➢ Avoid bending, creasing or rotating the cable or exposing it to other strains. Do not ride over the sensor cable, e.g., in a chair. Do not swirl the sensor about by its cable.
- ➢ When removing the plug pull on the plug and not on the cable.
- ➢ Make sure that the sensor cable is run out of the patient's mouth in such a way that the patient cannot bite it.
- ➢ Inspect the sensor cable visually for damage every day.

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5.6.1 Position sensor with single-use sensor holder system

5.6.1.1 Notes on the sensor holder tabs



IMPORTANT

The sensor holder tabs are single use devices and cannot be reused.



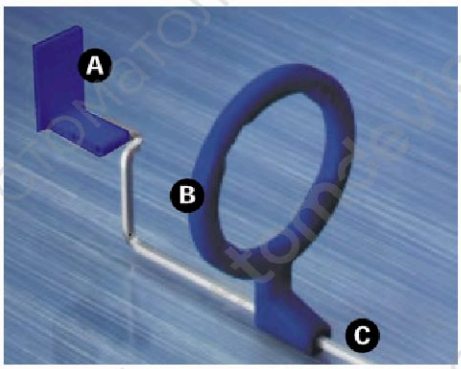
IMPORTANT

Adhesive properties may deteriorate over time based on age and storage conditions.

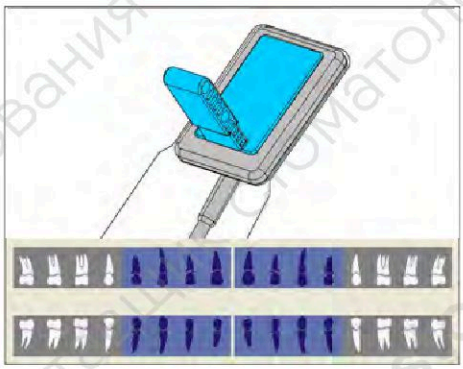
➢ If more than one year has passed since the manufacture date, check adhesive strength before use.
Do not use if holder does not securely adhere to sheath.

5.6.1.2 Anterior tooth exposure

For anterior tooth exposures use the **blue** sensor holder.



1. Place the blue localizer ring (B) onto the **triple-angled** guide rod (C).
2. Place the blue sensor holder tab (A) onto the guide rod (C).
3. Slide the sensor into the hygienic protective sleeve, see section "Slide the hygienic protective sleeve over the sensor".



4. Glue the sensor holder tab onto the sensor's hygienic protective sleeve. Place the tab **in the center** of the sensor as shown in the diagram.

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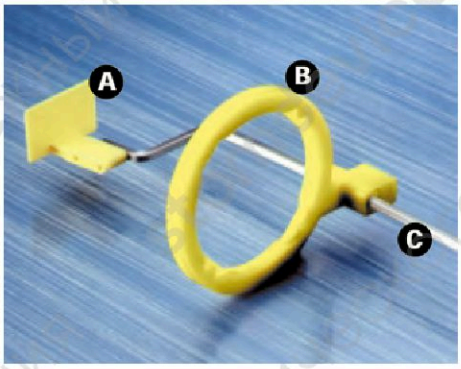
5. Position the sensor in the patient's mouth.
6. Bring the X-ray tube assembly into the correct position and take an X-ray exposure.
7. Remove the sensor from the hygienic protective sleeve. For this follow the instructions in section "Remove the hygienic protective sleeve from the sensor" [→ 95]. The used sensor holder tab and hygienic protective sleeve must be disposed of after the examination.
8. Clean and sterilize the guide rod and localizer ring.

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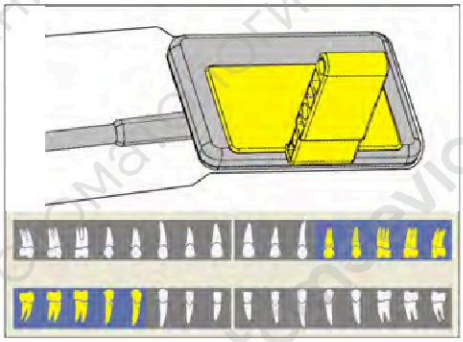
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5.6.1.3 Posterior tooth exposures

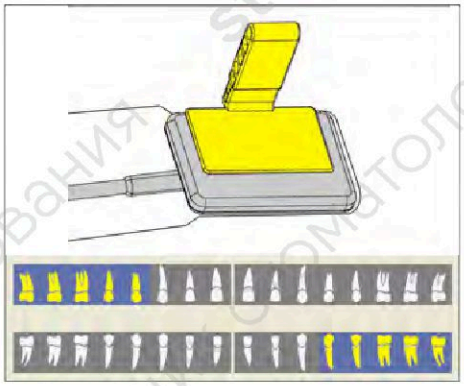
For posterior tooth exposures use the **yellow** sensor holder.



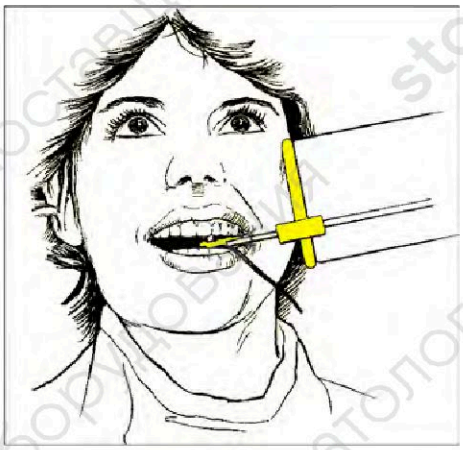
1. Place the yellow localizer ring (B) onto the **double-angled** guide rod (C).
2. Place the yellow sensor holder tab (A) onto the guide rod (C).
3. Slide the sensor into the hygienic protective sleeve, see section "Slide the hygienic protective sleeve over the sensor".



4. **For the left upper jaw and right lower jaw:** Glue the sensor holder tab onto the sensor's hygienic protective sleeve. Place the tab **in the center** on the sensor. The edge of the tab must **lock** with the **edge** of the sensor, as shown in the diagram.



5. **For the right upper jaw and left lower jaw** the sensor holder tab must be placed in the mirrored position. See the adjacent drawing.



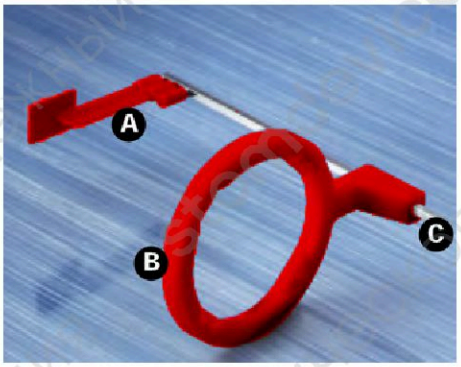
6. Position sensor in patient's mouth.
7. Bring the X-ray tube assembly into the correct position and take an X-ray exposure.
8. Remove the sensor from the hygienic protective sleeve. For this follow the instructions in section "Remove the hygienic protective sleeve from the sensor" [→ 95]. The used sensor holder tab and hygienic protective sleeve must be disposed of after the examination.
9. Clean and sterilize the guide rod and localizer ring.

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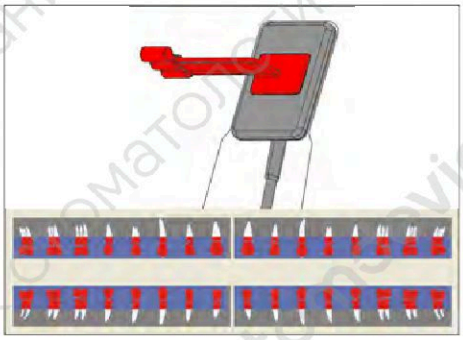
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5.6.1.4 Bite wing exposures

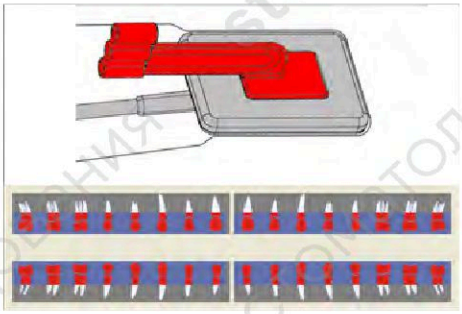
For bite wing exposures use the **red** sensor holder.



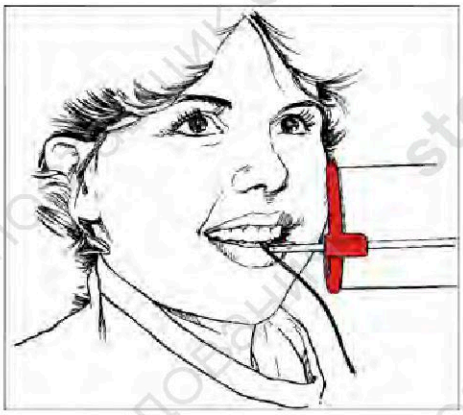
1. Place the red localizer ring (B) onto the **straight** guide rod (C).
2. Place the red sensor holder tab (A) onto the guide rod (C).
3. Slide the sensor into the hygienic protective sleeve, see section "Slide the hygienic protective sleeve over the sensor".



4. **For vertical bite wing exposures:** Glue the sensor holder tab onto the sensor's hygienic protective sleeve. Align the tab **vertically** to the sensor and place it **in the center** on the active sensor surface, as shown in the diagram.



5. **For horizontal bite wing exposures** the tab must be placed aligned **horizontally** to the sensor. See the adjacent drawing.



6. Position the sensor in the patient's mouth.
7. Bring the X-ray tube assembly into the correct position and take an X-ray exposure.
8. Remove the sensor from the hygienic protective sleeve. For this follow the instructions in section "Remove the hygienic protective sleeve from the sensor" [→ 95]. The used sensor holder tab and hygienic protective sleeve must be disposed of after the examination.
9. Clean and sterilize the guide rod and localizer ring.

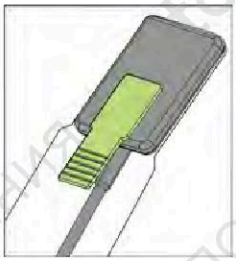
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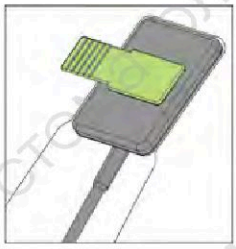
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5.6.1.5 Endodontics exposures with the half-angle technique

For endodontics exposures with the half-angle technique use the **green** universal sensor holder tab.

1. Slide the sensor into the hygienic protective sleeve, see section "Slide the hygienic protective sleeve over the sensor".
2. Glue the green universal sensor holder tab onto the sensor's hygienic protective sleeve. Place the tab **in the center** of the sensor as shown in the diagram.
3. **For anterior tooth exposures:** Glue the sensor holder tab onto the sensor's hygienic protective sleeve. Align the tab **to the sensor edge of the cable** and place it **in the center** on the sensor, as shown in the diagram.





4. **For posterior tooth exposures** the tab must be aligned **vertically** to the sensor and placed **in the center** on the sensor. See the adjacent drawing.
5. Position sensor in patient's mouth.
6. Bring the X-ray tube assembly into the correct position and take an X-ray exposure.
7. Remove the sensor from the hygienic protective sleeve. For this follow the instructions in section "Remove the hygienic protective sleeve from the sensor" [→ 95]. The used sensor holder tab and hygienic protective sleeve must be disposed of after the examination.
8. Clean and sterilize the tab.

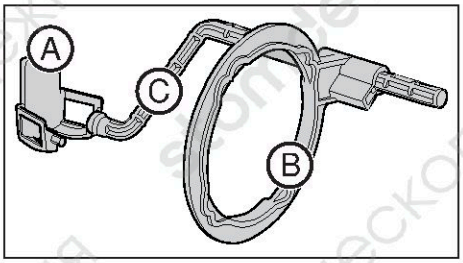
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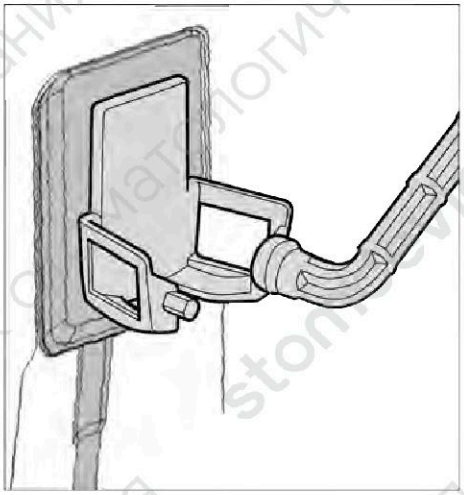
5.6.1.6 Measurement exposure for endodontics

Endodontic needles and files can remain in the root canal for the measurement exposure.

For endodontics exposures use the **grey** sensor holder.



1. Place the grey localizer ring (B) onto the **plastic guide rod** (C).
2. Place the grey sensor holder tab (A) onto the guide rod (C).
3. Slide the sensor into the hygienic protective sleeve, see section "Slide the hygienic protective sleeve over the sensor".



4. Glue the sensor holder tab onto the sensor's hygienic protective sleeve. Place the tab **in the center** of the sensor as shown in the diagram.
5. Position the sensor in the patient's mouth.
6. Bring the X-ray tube assembly into the correct position and take an X-ray exposure.
7. Remove the sensor from the hygienic protective sleeve. For this follow the instructions in section "Remove the hygienic protective sleeve from the sensor" [→ 95]. The used sensor holder tab and hygienic protective sleeve must be disposed of after the examination.
8. Clean and sterilize the guide rod and localizer ring.

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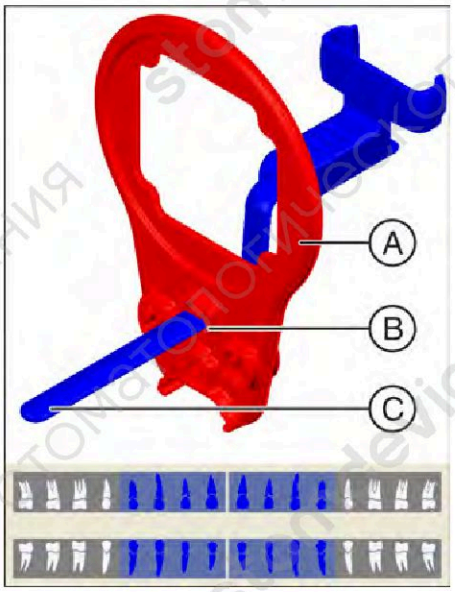
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5.6.2 Position sensor with Aimright reusable sensor holder system

5.6.2.1 Anterior tooth exposure

Preparing the sensor holder

For anterior tooth exposures use the **blue** sensor holder.



1. Fasten the guide rod for the sensor holder (C) in the perforation (B) of the localizer ring (A).
2. Slide the sensor into the hygienic protective sleeve;
see "Slide the hygienic protective sleeve over the sensor".



3. To do this, place the sensor on the palm of your hand and clip the sensor holder onto the sensor.



4. Push the sensor into the sensor holder up to the stop.

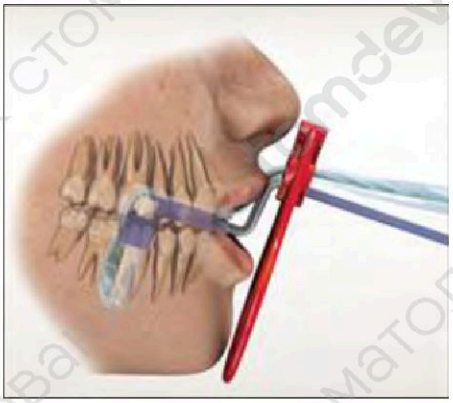
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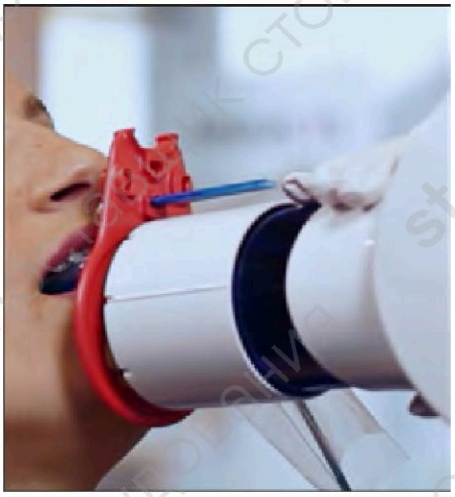
Positioning the sensor for exposures of the lower jaw



1. Look through the localizer ring to check the alignment of the sensor. The sensor must be located centrally in front of the opening in the localizer ring.



2. Position the sensor in the patient's mouth.
3. Use light pressure to align the sensor so that it lies parallel with the lower front teeth.
4. Ask the patient to close their mouth slowly and bite down on the sensor holder.
5. Slide the localizer ring onto the patient's lips.



6. Align the cone of the X-ray tube assembly parallel to the sensor directly on the localizer ring.
7. Release an X-ray exposure. Refer to sections Select the exposure parameters for the X-ray tube assembly and Releasing the exposure. Also observe the operating instructions for the X-ray tube assembly.

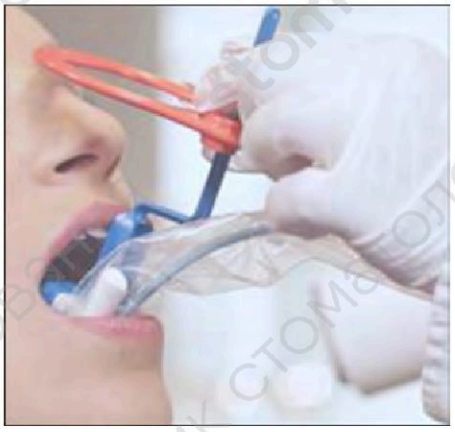
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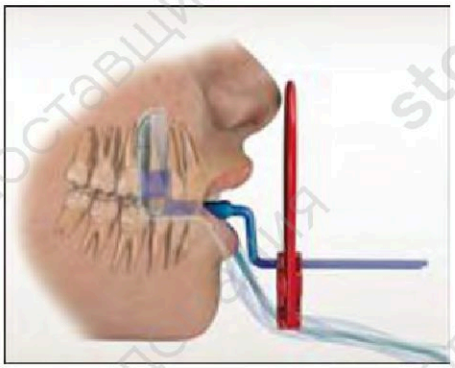
Positioning the sensor for exposures of the upper jaw



1. Look through the localizer ring to check the alignment of the sensor. The sensor must be located centrally in front of the opening in the localizer ring.



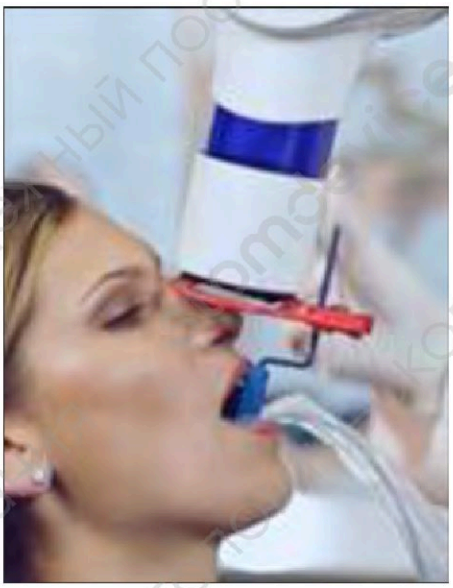
2. Position the sensor centrally in the oral cavity without it touching the roof of the mouth.
3. Ask the patient to close their mouth slowly and fix the sensor holder to the cutting edge.
   Tip: A cotton roll on the lower cutting edge stabilizes the sensor holder support and supports parallelism with the bite block on the sensor holder.
   ↳ The sensor is parallel with the upper front teeth.



4. Slide the localizer ring to the patient's face.

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5. Align the cone of the X-ray tube assembly parallel to the sensor directly on the localizer ring.
6. Release an X-ray exposure. Refer to sections Select the exposure parameters for the X-ray tube assembly and Releasing the exposure. Also observe the operating instructions for the X-ray tube assembly.

After the exposure

1. Ask the patient to open their mouth.
2. Remove the sensor from the patient's mouth.
3. Remove the sensor from the hygienic protective sleeve. Follow the instructions in the section Removing the hygienic protective sleeve from the sensor [→ 95]. The hygienic protective sleeves must be disposed of after the examination.
4. Clean and sterilize the sensor holder and localizer ring.

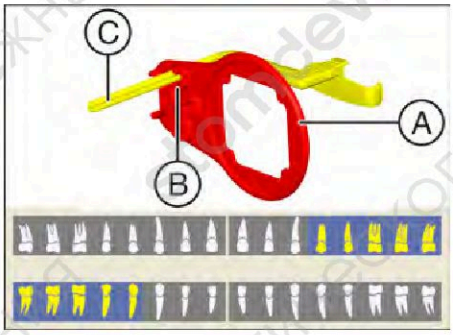
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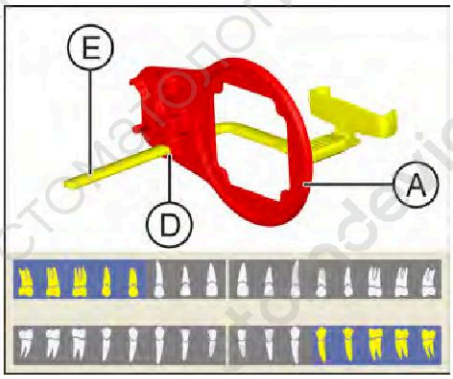
5.6.2.2 Posterior tooth exposures

Preparing the sensor holder

For posterior tooth exposures use the **yellow** sensor holders.



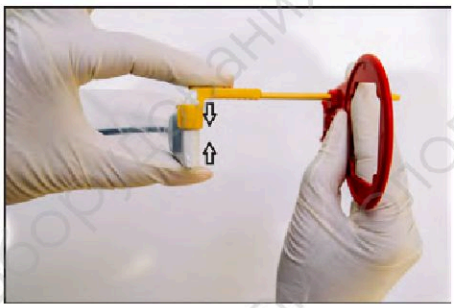
1. **For the right upper jaw and left lower jaw:** Fasten the guide rod for the sensor holder (C) in the perforation (B) of the localizer ring (A).



2. **For the left upper jaw and right lower jaw:** Fasten the guide rod for the sensor holder (E) in the perforation (D) in the localizer ring (A).
3. Slide the sensor into the hygienic protective sleeve, see section "Slide the hygienic protective sleeve over the sensor".



4. Place the sensor on the palm of your hand and clip the sensor holder onto the sensor.

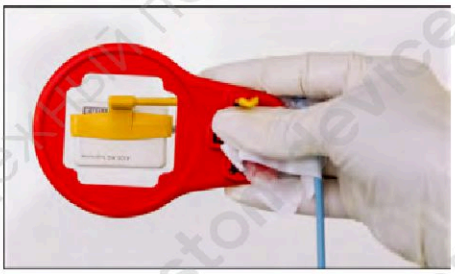


5. Push the sensor into the sensor holder up to the stop.

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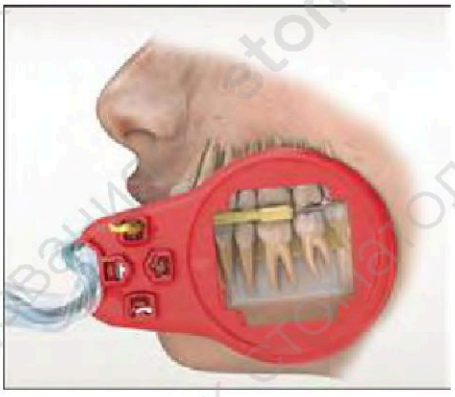
Position the sensor



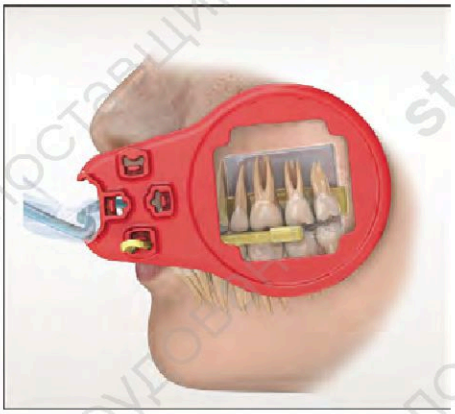
1. Look through the localizer ring to check the alignment of the sensor. The sensor must be located centrally in front of the opening in the localizer ring.



2. Position the sensor in the patient's mouth and align it so that it is parallel with the posterior teeth.

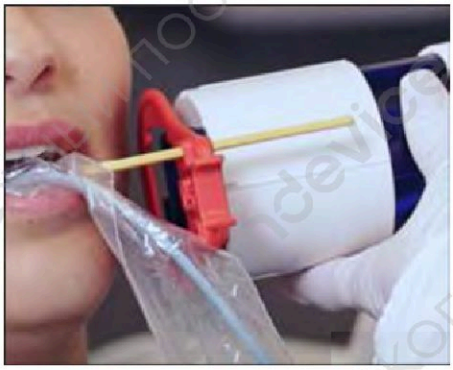


↳ Example: Positioning on the lower jaw



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↳ Example: Positioning on the upper jaw

3. Align the cone of the X-ray tube assembly parallel to the sensor directly on the localizer ring.
4. Release an X-ray exposure. Refer to sections Select the exposure parameters for the X-ray tube assembly and Releasing the exposure. Also observe the operating instructions for the X-ray tube assembly.

After the exposure

1. Ask the patient to open their mouth.
2. Remove the sensor from the patient's mouth.
3. Remove the sensor from the hygienic protective sleeve. Follow the instructions in the section Removing the hygienic protective sleeve from the sensor [→ 95]. The hygienic protective sleeves must be disposed of after the examination.
4. Clean and sterilize the sensor holder and localizer ring.

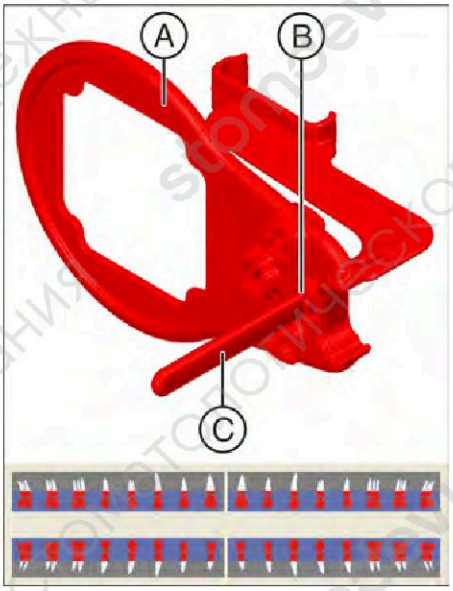
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5.6.2.3 Horizontal bite wing exposures

Preparing the sensor holder

For bite wing exposures use the **red** sensor holder.



1. Fasten the guide rod for the sensor (C) in the perforation (B) of the localizer ring (A).
2. Slide the sensor into the hygienic protective sleeve, see section "Slide the hygienic protective sleeve over the sensor".



3. Place the sensor on the palm of your hand and clip the sensor holder onto the sensor.
4. Slide the sensor into the center of the sensor holder.

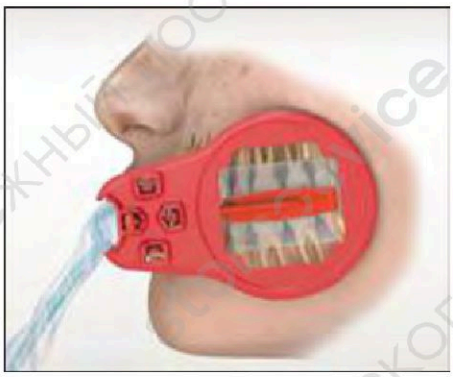
Position the sensor



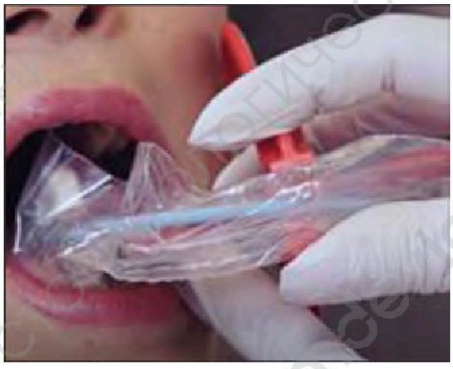
1. Look through the localizer ring to check the alignment of the sensor. The sensor must be located centrally in front of the opening in the localizer ring.

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2. Position the sensor directly on the dental arch.
   - The bite block of the sensor holder must be located between the upper molars, parallel to the occlusal plane.
   - In order to avoid superimpositions, the sensor must be positioned parallel to the dental arch line.



3. Slide the localizer ring to the patient's face.



4. Align the cone of the X-ray tube assembly parallel to the sensor directly on the localizer ring.
5. Release an X-ray exposure. Refer to sections Select the exposure parameters for the X-ray tube assembly and Releasing the exposure. Also observe the operating instructions for the X-ray tube assembly.

After the exposure

1. Ask the patient to open their mouth.
2. Remove the sensor from the patient's mouth.
3. Remove the sensor from the hygienic protective sleeve. Follow the instructions in the section Removing the hygienic protective sleeve from the sensor [→ 95]. The hygienic protective sleeves must be disposed of after the examination.
4. Clean and sterilize the sensor holder and localizer ring.

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5.7 Select the exposure parameters for the X-ray tube assembly

5.7.1 X-ray doses and image quality

Factors for determining the X-ray doses

The dose to be set for X-ray exposure depends primarily on the following:

- Type of X-ray tube assembly (manufacturer, AC/DC, etc.)
- Distance between focal spot and sensor
- Morphology of patient
- Object, which tooth is to be X-rayed

The dose is adjusted through tube voltage and tube current (specified by kV/mA) as well as exposure time.

Please refer to the operating instructions for the X-ray unit.

Effects of too low or too high a dose

For physical reasons the digital X-ray sensors behave in the same way as with X-ray film. The lower the dosage value the higher the image noise, which in turn generally leads to a poorer detail resolution.

⚠ CAUTION

Image degradations caused by overexposure of the sensor cannot be compensated using subsequent image processing!

Default setting for brightness and contrast

Default settings for brightness and contrast can always be optimally adjusted through the image preprocessing function, independent of dose.

5.7.2 Recommended dose for XIOS XG sensors

XIOS XG sensors have a very wide effective dose area, so that, depending on the object and diagnostic question at hand, the selection of an optimal parameter adjustment is always possible.

IMPORTANT

Since the exposure time depends on the diagnostic problem as well as the respective clinical situation, the selection of an optimal adjustment is the responsibility of the treating physician.

Corresponding values apply to X-ray tube assemblies from other manufacturers and to AC tube units. However, for optimal image quality DC tube units should be used.

Please follow the manual for your intraoral X-ray tube assembly.

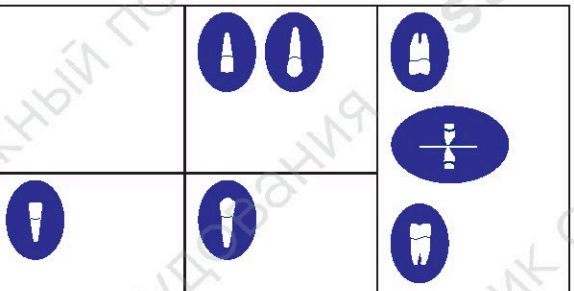
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5.7.3 HELIODENT Plus exposure times

5.7.3.1 Pre-programmed exposure times for XIOS XG sensors with 200 mm (8") FHA cone

0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.10	0.12	0.16	0.20	0.25	0.32	0.40

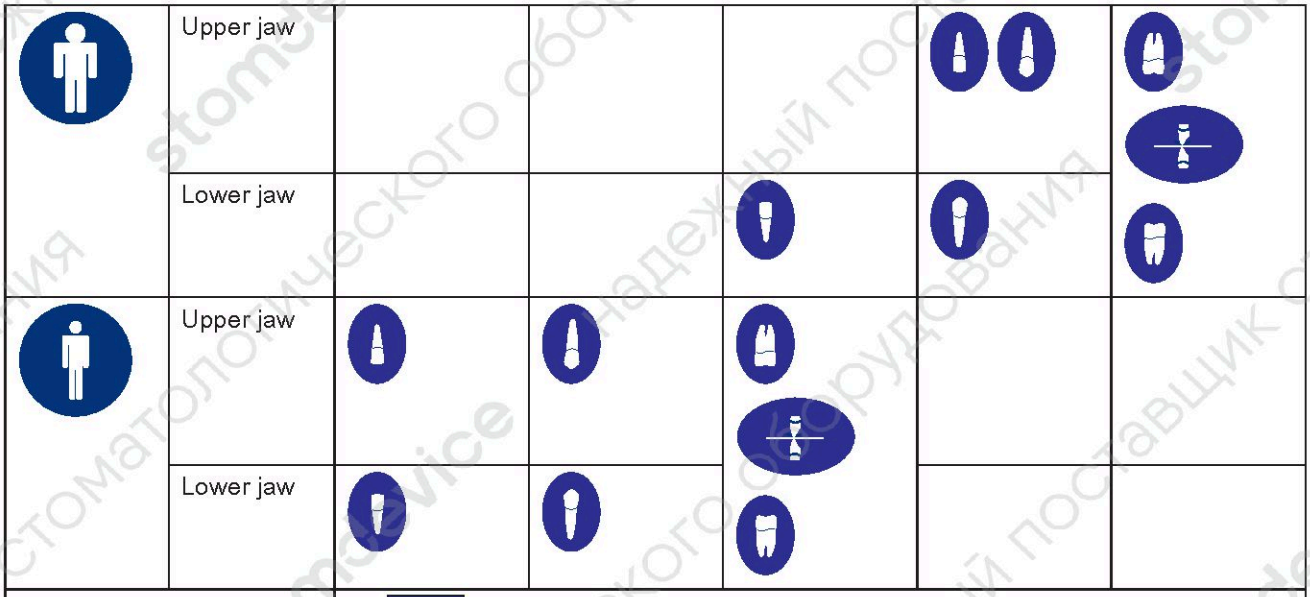
	Upper jaw					
	Lower jaw					
	Upper jaw					
	Lower jaw					
Exposure time in seconds with:						
60kV		0.06	0.08	0.10	0.12	0.16
70kV		0.03	0.04	0.05	0.06	0.08
Freely programmed values						

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5.7.3.2 Pre-programmed exposure times for XIOS XG sensors with 300 mm (12") FHA cone (round or square cone)

0.03	0.04	0.05	0.06	0.08	0.10	0.12	0.16	0.20	0.25	0.32	0.40	0.50	0.64	0.80



Exposure time in seconds with:					
60kV	0.12	0.16	0.20	0.25	0.32
70kV	0.06	0.08	0.10	0.12	0.16
Freely programmed values					

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5.8 Releasing the exposure

- ✓ The exposure parameters for the X-ray tube assembly are set, see "Select the exposure parameters for the X-ray tube assembly" [→ 91].
- ✓ The sensor is positioned in the patient's mouth with the corresponding auxiliary exposure equipment, see "Position the sensor" [→ 74].

1. Ensure that the WiFi interface is ready for exposures. The LED must be lit up from dimmed to bright ("breathing") on the WiFi interface, see "Determine unit status" [→ 66].
2. Ensure that SIDEXIS is ready for exposures. The green display must be flashing in the Exposure readiness window.
3. Check that the X-ray tube assembly is in the correct position and take the X-ray exposure.
4. Remove the sensor from the hygienic protective sleeve. For this follow the instructions in section "Remove the hygienic protective sleeve from the sensor" [→ 95]. The used sensor holder tab and hygienic protective sleeve must be disposed of after the examination. The guide rod and localizer ring must be cleaned and sterilized. The sensor must be wipe disinfected before using it with another patient.
5. Following the X-ray exposure, carefully remove the WiFi interface and the sensor to prevent them from falling down.
6. Continue with image processing in SIDEXIS.

⚠ CAUTION

The WiFi interface may heat to up to 48°C in the charger in normal operating conditions

With increased temperatures we recommend using patient clips so as to avoid direct bodily contact with the patient.

If the temperature of the WiFi interface is considerably higher than the ambient temperature (difference in temperature > 8°C) and is not pleasant to handle then please inform the service engineer responsible. In this case, the device should no longer be used for patient exposures.

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5.9 Removing the hygienic protective sleeve from the sensor

5.9.1 With single-use sensor holder system

Have the sensor holder tab and the sensor holder glued onto the hygienic protective sleeve. This makes it easier to remove the hygienic protective sleeve.

NOTICE

The sensor cable is sensitive to mechanical influences.

The cable may become damaged or may wear out prematurely.

➢ Do not pull on the sensor cable when pulling the sensor out of the hygienic protective sleeve. Slide the sensor further out of the hygienic protective sleeve with your thumb as described below.

➢ Avoid bending, creasing or rotating the cable or exposing it to other strains.



1. Grasp the guide rod in one hand so that you can touch the side of the sensor facing away from the sensor cable with your thumb.



2. Carefully push the sensor out of the part of the hygienic protective sleeve that is glued to the sensor holder tab with your thumb.

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3. Slide the sensor further out of the hygienic protective sleeve with your thumb.



4. Hold the sensor cable firmly to prevent the sensor from falling out of the hygienic protective sleeve.

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5.9.2 With Aimright reusable sensor holder system

NOTICE

The sensor cable is sensitive to mechanical influences.

The cable may become damaged or may wear out prematurely.

➢ Do not pull on the sensor cable when pulling the sensor out of the hygienic protective sleeve. Slide the sensor further out of the hygienic protective sleeve with your thumb as described below.

➢ Avoid bending, creasing or rotating the cable or exposing it to other strains.



1. Remove the sensor with the hygienic protective sleeve from the sensor holder. To do this, open up the sensor holder by pressing gently on one side as shown in the figure.



2. Carefully push the sensor out of the narrow part of the hygienic protective sleeve with two fingers.
3. Slide the sensor further out of the hygienic protective sleeve.



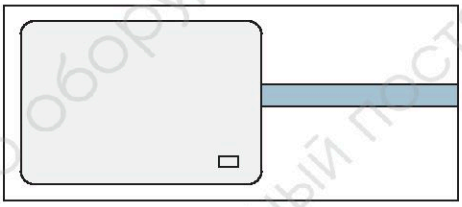
4. Hold on to the sensor and remove it from the hygienic protective sleeve.

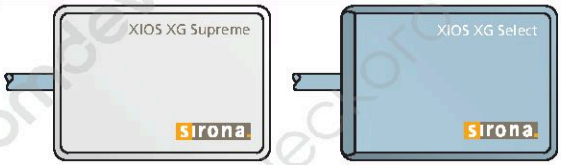
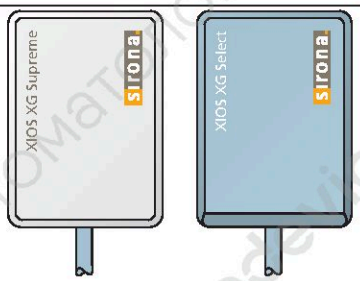
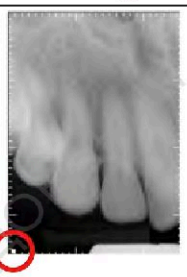
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5.10 Alignment of the X-ray image

The sensor alignment is shown on the X-ray image by a small rectangle of inverted pixels.



Positioning the sensor	Sensor alignment	Inverted pixels (encircled) and image alignment
Patient's right side		 Right bite wing
Patient's left side		 Left bite wing
Upper jaw		 Upper jaw anterior teeth
Lower jaw		 Lower jaw anterior teeth

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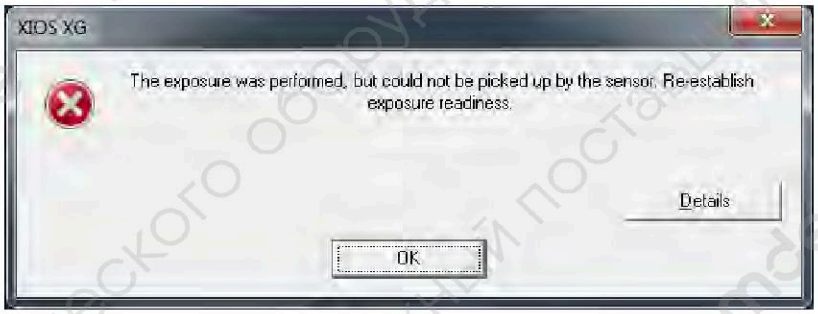
5.11 Resend non-transmitted WiFi exposures to SIDEXIS XG / SIDEXIS 4

Auto recovery

The WiFi interface tries to recover the network connection over an interval of 2 minutes if the WiFi signal strength is not sufficient for the data transmission. It may not be turned off during this time and the sensor may not be removed or else the image will be lost!

Case 1: The network connection is searched for 2 minutes and is recovered within this time. The data are now sent automatically. The image is displayed in SIDEXIS XG / SIDEXIS 4.

Case 2: The network connection is searched for 2 minutes and is not recovered within this time. The exposure readiness dialog closes and the following error message appears:



Once the network connection is recovered the WiFi interface switches to the "Ready for exposure" mode. LED is lit up from dimmed to bright ("breathing"). The existing exposure can be transmitted to SIDEXIS XG / SIDEXIS 4 if the next exposure readiness is created, see the following.

Rescue

During the course of normal acquisition with XIOS XG, the exposures are transferred to SIDEXIS XG / SIDEXIS 4 immediately after acquisition.

If an error occurs while an exposure is being transferred to SIDEXIS XG / SIDEXIS 4, the exposure will still be backed up locally in a buffer store. The following dialog window is shown when creating the exposure readiness the next time:



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Select one of the following options.

- Click on the *"Yes"* button to transfer the image to *"SIDEXIS XG / SIDEXIS 4"*. The image is transferred. Exposure readiness is established after this.
- Click on the *"No"* button to skip transfer of the image. Exposure readiness is established immediately. The image that has not yet been transferred is lost.
- To cancel the process, click the *"Cancel"* button. Exposure readiness is not established. When exposure readiness is created again the image that has not yet been transferred is the one referred to.

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6 Maintenance and inspection

6.1 Hygiene

Disinfect and sterilize accessories prior to initial use and after each patient.

6.1.1 Care, cleaning agents, and disinfectants

NOTICE

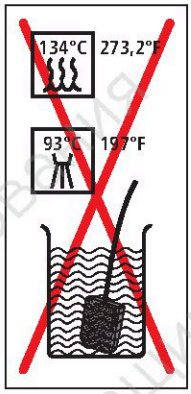
Approved care, cleaning, and disinfecting agents

Use only care, cleaning and disinfecting agents approved by Sirona!

For a continuously updated list of approved agents, please visit *"www.sirona.com"*. To access the online portal for technical documentation, follow the *"SERVICE" I "Technical Documentation"* menu items in the navigation bar. The portal can also be accessed directly via the following address http://www.sirona.com/manuals. Click on the menu item *"General documents"* and then open the *"Care, cleaning and disinfection agents"* document.

If you do not have any access to the Internet, please contact your dental depot to order the list (REF 59 70 905).

6.1.2 WiFi interface, charger and sensors



NOTICE

Liquids can get into the WiFi interface, charger or sensor during cleaning and disinfection. The plug contacts may become wet.

Electronic components may be damaged or destroyed by a short circuit.

- ➢ Before cleaning and disinfecting remove the sensor from the WiFi interface and remove the power supply unit plug from the charger. The system must be disconnected from the mains.
- ➢ The WiFi interface, charger and sensor must not be thermal disinfected, sterilized or immersed in disinfectant. They must not be disinfected or sterilized with radiation. Apply wipe disinfectant only.
- ➢ Never spray plug connections with disinfectants or cleaning solutions. Make sure that the plug contacts do not become wet.

NOTICE

Drugs have a chemical reaction with the surface of the unit.

Due to their high concentrations and the substances they contain, many drugs can dissolve, etch, bleach, or stain surfaces.

- ➢ Wipe any drug residues off the unit immediately with a moist, white cloth!

✓ All plug connections are disconnected.

1. Clean the sensor, the sensor cable, the WiFi interface and the charger with a cloth soaked in soapy water. After this, dry the components with a lint-free cloth.

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2. The sensor and the sensor cable must be wiped clean with disinfectant completely and thoroughly at least twice. After this, wipe the WiFi interface and the charger clean with disinfectant.
3. Remove any chemical residues by wiping the components clean with a sterile cloth. The surfaces should then be dry.
4. Store the sensor in a clean place for the next treatment.
5. Plug the power supply unit plug and the WiFi interface into the charger.

6.1.3 Sensor holders

The rods and rings of the XIOS XG single-use sensor holder system and all parts of the reusable sensor holder system can be sterilized.

The rods and rings or sensor holder and rings must be sterilized before initial use and once a treatment has ended. All parts must be cleaned before each sterilization.

NOTICE

The plastic parts of the sensor holder must not be exposed to high sterilization temperatures.

The plastics may melt, warp or become brittle as a result of improper sterilization.

- ➢ Sterilize metallic and plastic parts in separate sterilization pouches.
- ➢ Ensure that the temperature in the steam sterilizer does not exceed 134°C (273°F) during the sterilization process. Operate the steam sterilizer according to the manufacturer's instructions.
- ➢ Do not use phenol-based glutaraldehyde, ultrasonic cleaners, chemiclaves or hot-air sterilizers for sterilization. Do not use cold sterilization.

IMPORTANT

Plastic parts have a limited lifetime. This is reduced with each sterilization cycle. As a result replace the plastic parts of the sensor holder on a regular basis.

1. Separate the rods and rings or the sensor holder and rings.
2. Remove any residues with hot soapy water or mild dishwashing liquid.
3. Put the components, metal parts separated from plastic parts, into individual sterilization pouches.
4. Put the sterilization pouches into the middle tray of the steam sterilizer, ensuring sufficient distance to the walls of the steam sterilizer and the heating element.
5. Sterilize in a steam sterilizer at **134°C (273.2°F) for at least 3 min. holding time and 2.1 bar (30.5 psi) overpressure**.

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6.2 Regular inspections

Inspections must be performed at scheduled intervals to protect the health and safety of patients, users and other persons.

Before and during operation

The system owner or an appointed person must ensure that all components such as cables, sensors and housing parts are in sound condition.

Monthly

Once a month the system owner or an appointed person must:

- check the sensor cable thoroughly for wear and tear
- make sure the connector housing is fastened securely at the sensor cable

Annually

The image quality must be assessed by the system owner or an appointed person at regular intervals, at least once a year.

On digital sensors, the degree of postprocessing (brightness or contrast adjustment) that is required in the image processing software (e.g. SIDEXIS XG / SIDEXIS 4) to produce satisfactory results is used as an assessment criterion.

If these assessment criteria are regarded as given irrespective of the patient's anatomy and/or possible sources of error such as patient positioning, a service engineer should be called in immediately to rectify any possible system faults.

⚠ CAUTION

Should you identify faulty components on your XIOS XG product, please inform your appointed service engineer. In this case, the device should no longer be used for patient exposures.

Observe any possible additional country-specific requirements.

Please also check that all labels on the underside of the charger are undamaged and legible.

⚠ CAUTION

The WiFi interface and the charger must not be opened or repaired by the user.

All parts of the device are maintenance-free. In case of malfunctioning, please always contact your specialized dealer.

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6.3 Replace the sensor cable

The sensor cable can be replaced with a new one in the event of damage.

A "sensor cable" replacement set is required for this, see Consumables and spare parts [→ 108]"Consumables and spare parts". This contains the required spare parts and tool:

- Sensor cable
- Screwdriver
- 2 protective screw caps
- 2 Elastomer strips
- 4 flathead screws



NOTICE

The electric plug contacts of the sensor are exposed during installation.

The sensor may be destroyed by the electrostatic discharge at the contacts.

➢ Before installation discharge at a conductive grounded item, e.g., a water faucet or a bare heating pipe.

NOTICE

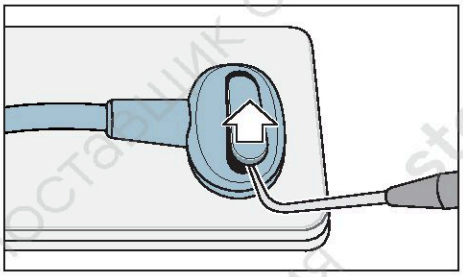
No dirt or moisture must be allowed to get into the exposed plug contacts.

Dirt causes contacts faults, moisture may lead to a short circuit.

➢ Wash and dry your hands. Do not wear powdered gloves. The powder could become deposited in the plug contacts of the sensor.

➢ Place the sensor on a clean, dry and stable surface.

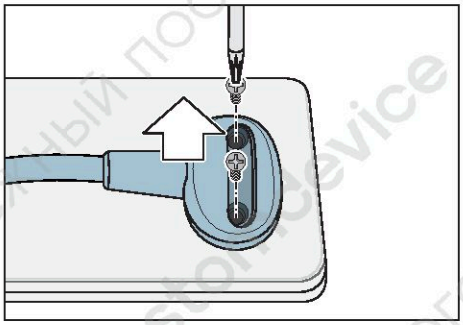
Unscrew a damaged cable from the sensor



1. Disconnect the sensor from the XIOS XG system.
2. With e.g. a dental instrument remove the protective screw cap from the rear side of the sensor.

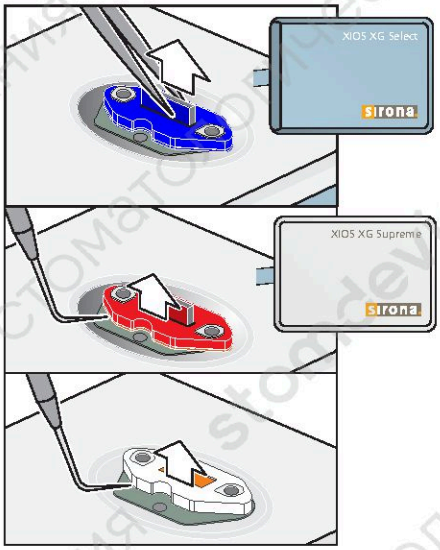
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3. Using the screwdriver supplied with the set remove the 2 screws which fasten the cable to the sensor.

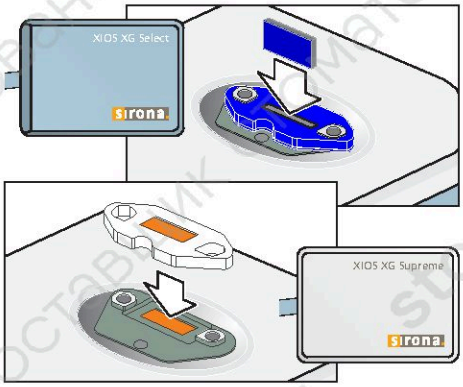
Replace the Elastomer strip



1. For XIOS XG Select sensors:
   Remove the existing elastomer strip from the sensor with tweezers. The blue plastic frame remains on the sensor.
   For XIOS XG Supreme sensors:
   When a red plastic frame with elastomer strip is used: Remove the entire plastic frame with the elastomer strip using a suitable tool. It is replaced with a white elastomer part.
   When a white elastomer part is used: Remove the entire elastomer part using a suitable tool.

IMPORTANT

Use the new parts supplied with the cable for the assembly!



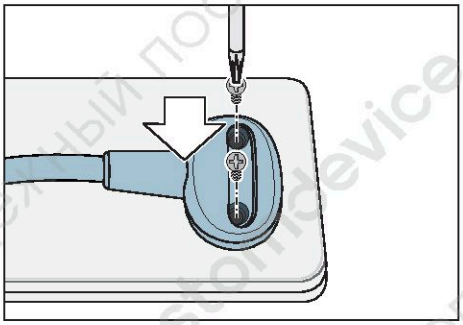
2. For XIOS XG Select sensors:
   Insert a new blue Elastomer strip in the slot. Check that it is positioned correctly by pressing lightly with tweezers. The Elastomer strip must be placed exactly in the slot so that the sensor works.
   For XIOS XG Supreme sensors:
   Place a new white elastomer part on the sensor.

Attach a replacement cable

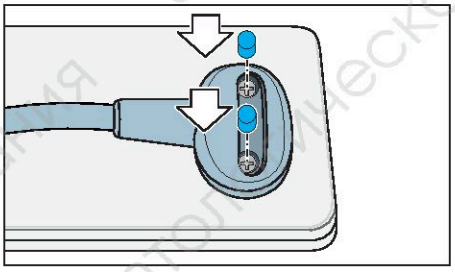
1. Place the plug for the sensor cable properly on the sensor. Both parts must interlock.

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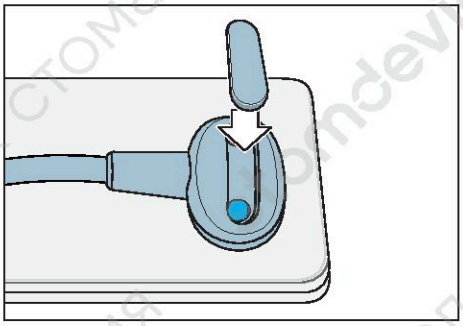
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2. Screw the sensor cable to the sensor using the screws supplied. Initially only tighten the screws until a light resistance can be felt. After this tighten both screws carefully.



3. Place a silicon protective cap on each screw.



4. Cover the screw heads with a new protective screw cap. Press the cap into the plug of the sensor cable until it locks in place.

↳ The cable replacement is now completed. The sensor can be used again.

6.4 Replace the WiFi interface storage battery

The storage battery must be replaced once it has been exhausted and there is only enough charge remaining for a few X-ray exposures.

The replacement set "XIOS XG WiFi Battery" REF 64 04 375 is required for this. This contains a new storage battery and a suitable screwdriver.

⚠ CAUTION

Hazards may be caused by lithium-ion storage batteries.

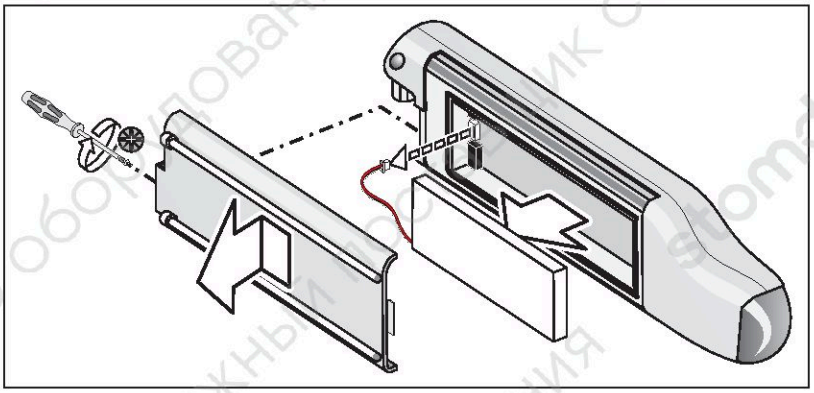
Improper use may result in fire as well as personal injury and damage to property.

- ➢ Never short-circuit the storage battery!
- ➢ Do not dismantle or convert the battery pack.
- ➢ Do not expose the storage battery to temperatures exceeding 66°C (150°F). Keep away from fire and heat.
- ➢ Do not expose the storage battery to heavy impacts or vibrations.
- ➢ Keep the storage battery dry.

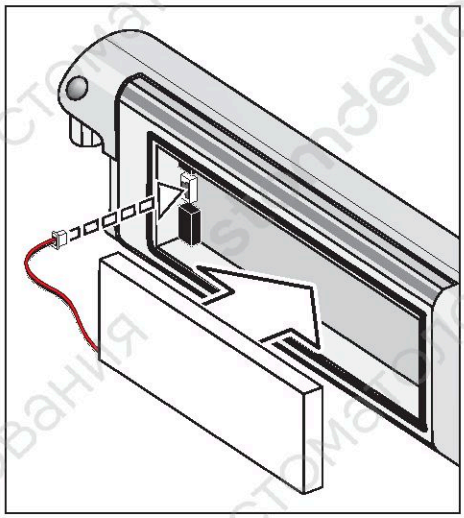
Please also observe the general safety instructions, see section "Storage battery" [→ 12].

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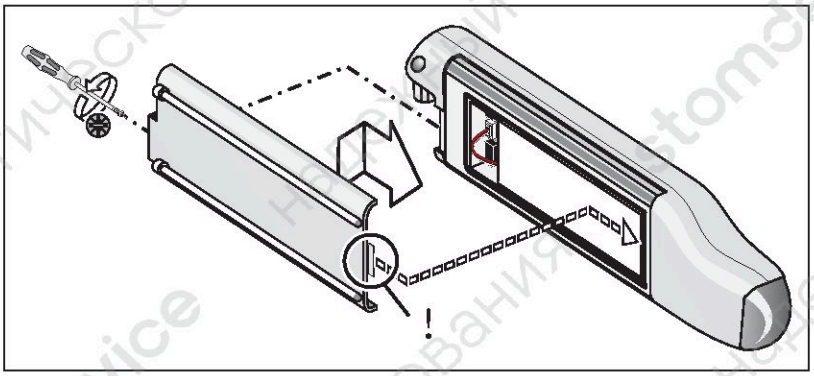
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1. There is a screw that secures the cover of the storage battery compartment at the opposite side of the LED. Unscrew this using the supplied screwdriver.
2. Remove the battery compartment cover and retain it.
3. Pull out the plug that connects the storage battery with the WiFi interface and take out the storage battery.



4. Insert the plug of the replacement battery into the socket on the WiFi interface. The connector can be plugged into the socket easily with the correct polarity.
5. Insert the replacement battery into the battery compartment.



6. Slide the hook of the battery compartment cover below the recess on the WiFi interface. Then, push the cover onto the WiFi interface so that it locks in place.
7. Secure the cover by screwing the screw down again using the screwdriver supplied.



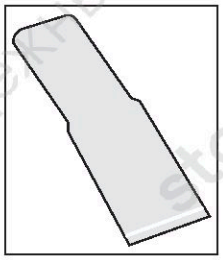
8. Plug the WiFi interface into the charger. Leave it plugged in until the storage battery has charged fully.

↳ The battery replacement is now completed. The WiFi interface can be reused.

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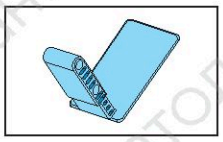
7 Consumables and spare parts



Hygienic protective sleeves for sensors

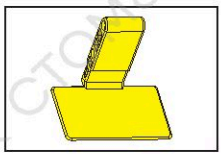
Hygienic protective sleeves for sensor size 0 and 1, quantity 300
REF 64 09 960

Hygienic protective sleeve for sensor size 2, quantity 300
REF 64 09 952

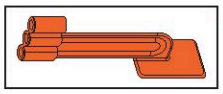


Sensor holder tabs

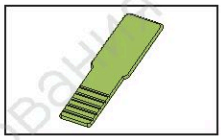
Blue sensor holder tab for front tooth exposure (anterior), quantity 100
REF 61 76 510



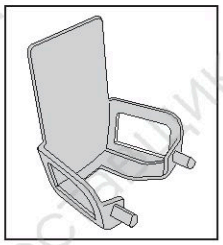
Yellow sensor holder tab for side tooth exposures (posterior), quantity 100
REF 61 76 528



Red sensor holder tab for bite wing exposures, quantity 100
REF 61 76 536



Green sensor holder tab for endodontic exposures using half-angle technique, quantity 100
REF 61 76 544



Gray sensor holder tab for endodontics (measurement exposure), quantity 50
REF 61 76 551

Sensor holder starter kits

Starter kits include the localizer ring and the guide rod along with 15 sensor holder tabs each for the blue, yellow, red, green and gray sensor holder. The kit also includes 50 hygienic protective sleeves for one sensor size.

Sensor holder starter kit for sensor size 0 and 1
REF 64 11 289

Sensor holder starter kit for sensor size 2
REF 64 11 297

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Aimright reusable sensor holder system



Localizer ring (red), quantity 1
REF 65 45 599



Sensor holder for bite wing exposures (red), for sensor size 1, quantity 2
REF 65 45 557

Sensor holder for bite wing exposures (red), for sensor size 2, quantity 2
REF 65 45 565



Sensor holder for anterior tooth exposures (blue), for sensor size 1, quantity 2
REF 65 45 573

Sensor holder for anterior tooth exposures (blue), for sensor size 2, quantity 2
REF 65 45 581

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Sensor holder for posterior tooth exposures (yellow), for sensor size 1, quantity 4
(2 for right lower jaw / left upper jaw and 2 for left lower jaw / right upper jaw)
REF 65 45 532

Sensor holder for posterior tooth exposures (yellow), for sensor size 2, quantity 4
(2 for right lower jaw / left upper jaw and 2 for left lower jaw / right upper jaw)
REF 65 45 540

Starter kits for Aimright reusable sensor holder system

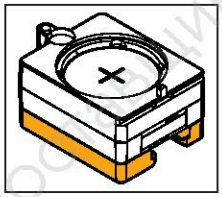
The starter kits are available for sensor sizes 1 and 2. Starter kits include the following:

- 2 localizer rings
- 2 sensor holders for horizontal bite wing exposures (red)
- 2 sensor holders for posterior tooth exposures left upper jaw / right lower jaw (yellow)
- 2 sensor holders for posterior tooth exposures right upper jaw / left lower jaw (yellow)
- 2 sensor holders for anterior tooth exposures (blue)
- 100 hygienic protective sleeves
- 1 poster showing sensor positioning

Aimright sensor holder starter kit for sensor size 1
REF 65 45 607

Aimright sensor holder starter kit for sensor size 2
REF 65 45 615

Test phantom



Test phantom for sensor size 0, 1 and 2 for consistency test
REF 64 00 449

Sensors with cable for WiFi interface

XIOS XG Select WiFi size 0 - 45 cm
REF 64 06 271

XIOS XG Select WiFi size 1 - 45 cm
REF 64 06 263

XIOS XG Select WiFi size 2 - 45 cm
REF 64 06 255

XIOS XG Supreme WiFi size 0 - 45 cm
REF 64 06 305

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XIOS XG Supreme WiFi size 1 - 45 cm
REF 64 06 297

XIOS XG Supreme WiFi size 2 - 45 cm
REF 64 06 289

Sensor cable for WiFi interface

XIOS XG WiFi cable kit 45 cm
REF 64 04 482

XIOS XG WiFi cable kit 90 cm
REF 64 04 516

XIOS XG WiFi cable kit 180 cm
REF 64 04 524

XIOS XG WiFi cable kit 270 cm
REF 64 04 532

Radiated field limitation for HELIODENT^{PLUS}

Radiation field limitation for sensor size 0, white
REF 64 00 142

Radiation field limitation for sensor size 1, black
REF 62 42 007

Radiation field limitation for sensor size 2, blue
REF 62 41 991

Turning handle with locking hook
REF 63 52 319

Locking hook
REF 51 67 965

WiFi interface, battery, charger and power supply unit

WiFi interface
REF 64 04 367

Battery for the WiFi interface
REF 64 04 375

WiFi charger
REF 64 04 383

WiFi power supply unit for the charger
REF 64 04 425

Holders

XIOS XG wall-mounted sensor holder
REF 64 04 151

Patient clip for the XIOS XG WiFi interface
REF 64 04 342

Wall holder for the XIOS XG WiFi charger
REF 64 04 441

RFID technology

XIOS XG WiFi RFID reader, quantity 1
REF 64 04 458

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XIOS XG WiFi RFID reader, quantity 3
REF 64 04 334

XIOS XG WiFi RFID reader extension cable, 2m
REF 64 04 581

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8 Electromagnetic compatibility

XIOS XG complies with the requirements for electromagnetic compatibility (EMC) according to IEC 60601-1-2.

XIOS XG is hereinafter referred to as "UNIT". Observance of the following information is necessary to ensure safe operation regarding EMC aspects.

8.1 Accessories

Description	Manufacturer	Order No.	Model No.	Serial No.
Switching Power Adapter	UE	UE100607 H KKK2-P	UE1SWCP 1-0651505 PA	Not applicable
Counter Top Dock	SIRONA USA	Not applicable	2420	Not applicable
Transceiver	SIRONA USA	Not applicable	2410	000B6CB4 CFB3
Sensor (6 ft)	SIRONA USA	Not applicable	2402-100	12009947
Transceiver	SIRONA USA	Not applicable	2410	000B6CB42 121
Sensor (3 ft)	SIRONA USA	Not applicable	2402-102	12009618
Sensor (9 ft)	SIRONA USA	Not applicable	2402-101	12009919
Sensor (18")	SIRONA USA	Not applicable	2402-103	12009923

The UNIT may only be operated with accessories and spare parts approved by Sirona. Unapproved accessories and spare parts may lead to an increased emission or to a reduced immunity to interference.

The UNIT should not be operated in the immediate vicinity of other devices. If this proves to be unavoidable, the UNIT should be monitored to check and make sure that it is used properly.

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8.2 Electromagnetic emission

The **UNIT** is intended for operation in the electromagnetic environment specified below.

The customer or user of the **UNIT** should make sure that it is used in such an environment.

Emission measurement	Conformity	Electromagnetic environment - guidelines
RF emissions according to **CISPR 11**	Group 1	The **UNIT** uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions according to **CISPR 11**	Class B	The **UNIT** is intended for use in all facilities, including residential areas and in any facilities connected directly to a public power supply providing electricity to buildings used for residential purposes.
Harmonics according to **IEC 61000-3-2**	Class A	
Voltage fluctuations / flicker according to **IEC 61000-3-3**	coincides	

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8.3 Interference immunity

The **UNIT** is intended for operation in the electromagnetic environment specified below.

The customer or user of the **UNIT** should make sure that it is used in such an environment.

Interference immunity tests	IEC 60601-1-2 test level	Compliance level	Electromagnetic environment - guidelines
Electrostatic discharge (ESD) according to **IEC 61000-4-2**	± 6 KV contact discharge ± 8 KV air discharge	± 6 KV contact discharge ± 8 KV air discharge	Floors should be made of wood or concrete or finished with ceramic tiling. If the floor is covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/ burst **according to IEC 61000-4-4**	± 1 kV for input and output lines ± 2 kV for power supply lines	± 1 kV for input and output lines ± 2 kV for power supply lines	The quality of the line power supply should be that of a typical commercial or hospital environment.
Surge voltages according to **IEC 61000-4-5**	± 1 kV differential mode voltage ± 2 kV common mode voltage	± 1 kV differential mode voltage ± 2 kV common mode voltage	The quality of the line power supply should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and variations of the power supply according to **IEC 61000-4-11**	<5% U_T for ½ period (>95% dip of U_T) 40% U_T for 5 periods (60% dip of U_T) 70% U_T for 25 periods (30% dip of U_T) <5% U_T for 5 sec. (>95% dip of U_T)	<5% U_T for ½ period (>95% dip of U_T) 40% U_T for 5 periods (60% dip of U_T) 70% U_T for 25 periods (30% dip of U_T) <5% U_T for 5 sec. (>95% dip of U_T)	The quality of the line power supply should be that of a typical commercial or hospital environment. If the user of the **UNIT** requires it to continue functioning following interruptions of the power supply, it is recommended to have the **UNIT** powered by an uninterruptible power supply or a battery.
Magnetic field of power frequencies (50/60 Hz) according to **IEC 61000-4-8**	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Note: U_T is the AC supply voltage prior to application of the test level.			
			Portable and mobile radio equipment must not be used within the recommended working clearance from the **UNIT** and its cables, which is calculated based on the equation suitable for the relevant transmission frequency. Recommended working clearance:

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Interference immunity tests	IEC 60601-1-2 test level	Compliance level	Electromagnetic environment - guidelines
Conducted RF interference **IEC 61000-4-6**	3 V_{eff} 150 kHz to 80 MHz[1]	3 V_{eff}	d= [1.2] √P
Radiated RF interference **IEC 61000-4-3**	3 V/m 80 MHz to 800 MHz[1] 3 V/m 800 MHz to 2.5 GHz[1]	3 V_{eff} 3 V_{eff}	d= [1.2] √P at 80 MHz to 800 MHz d= [2.3] √P at 800 MHz to 2.5 GHz with P as the power rating of the transmitter in watts (W) according to the transmitter manufacturer's specifications and d as recommended safety distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey[2] should be less than the compliance level[3] in each frequency range. Interference is possible in the vicinity of equipment bearing the following graphic symbol. 

1. The higher frequency range applies at 80 MHz and 800 MHz.
2. The field strengths of fixed transmitters, such as base stations of radiotelephones and mobile agricultural radio broadcast services, amateur radio stations, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. A site survey is recommended to assess the electromagnetic environment due to fixed RF transmitters. If the measured field strength in the location in which the **UNIT** is used exceeds the applicable RF compliance level above, the **UNIT** should be observed to verify normal operation. If unusual performance characteristics are observed, it may be necessary to take additional measures such as reorientation or repositioning of the **UNIT**.
3. Over the frequency range 150kHz to 80 MHz, field strengths should be less than 3 V/m.

8.4 Working clearances

Recommended working clearances between portable and mobile RF communication devices and the UNIT

The **UNIT** is intended for operation in an electromagnetic environment, where radiated RF interference is checked. The customer or the user of the **UNIT** can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the **UNIT** - depending on the maximum output power of the communication device, as shown below.

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Power rating of the transmitter [W]	Working clearance according to transmission frequency [m]		
	150 kHz - 80 MHz	80 MHz - 800 MHz	800 MHz - 2.5 GHz
	d= [1.2] √P	d= [1.2] √P	d= [2.3] √P
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

The recommended safety distance d in meters (m) can be determined for transmitters, whose maximum power rating is not specified in the above table, using the equation that belongs to the corresponding column, wherein P is the maximum power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Note 1

The higher frequency range applies at 80 MHz and 800 MHz.

Note 2

These guidelines may not apply in all cases. The propagation of electromagnetic waves is influenced by their absorption and reflection by buildings, objects and persons.

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9 Disposal



In accordance with Directive 2012/19/EU and national disposal regulations regarding old electrical and electronic devices, please be advised that such items must be disposed of in a special way within the European Union (EU). These regulations require environmental friendly usage/disposal of old electrical and electronic devices. Such items must not be disposed of as domestic refuse. This has been expressed using the icon of the “crossed out trash can” since March 24, 2006, amongst other methods.

Disposal procedure

We feel responsible for our products from the first idea to their disposal. For this reason, we give you an option to return our old electronic and electrical devices.

If you wish to dispose of your devices, please proceed as follows:

In Germany

To initiate return of the electrical device, please send a disposal request to enretec GmbH. You have the following options here:

- Use the “Returning an electrical device” button under the “eom” menu item on the enretec GmbH homepage (www.enretec.de).
- Alternatively, you can also contact enretec GmbH directly.

  enretec GmbH
  Kanalstraße 17
  16727 Velten
  Tel.: +49 3304 3919-500
  E-Mail: eom@enretec.de

In accordance with the national disposal regulations regarding old electrical and electronic devices (ElektroG), as the manufacturer, we assume the costs for disposing of the electrical and electronic devices in question. Disassembly, transport and packaging costs shall be borne by the owner/ operator.

Prior to disassembly / disposal of the product, it must be fully prepared (cleaned / disinfected / sterilized).

If your unit is not permanently installed, it will be collected from the practice. If it is permanently installed, it will be picked up curbside at your address by appointment.

Other countries

For country-specific information on disposal, contact your local dental dealers.

Storage battery disposal



Storage batteries must be disposed of according to the disposal regulations and legal regulations in your country.

➢ Remove the lithium storage battery from the WiFi interface before disposal, see "Exchange the WiFi interface storage battery" [→ 106].

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We reserve the right to make any alterations which may be required due to technical improvements.

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